TELEPHONY

The Journal of the Telephone Industry

CIRCULATION THIS ISSUE

11,100

•

NOVEMBER 22, 1941

Rural Community Telephoning Issue

XUM

Her quick action saved a baby's life

SITTING at a small-town switchboard, the operator heard a woman's voice, hysterical.

"My baby's having convulsions! He's dying! Please get me a doctor, quick!"

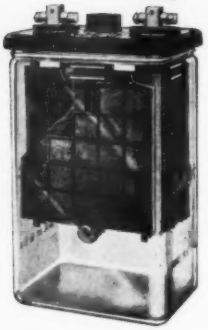
Swiftly the telephone operator calmed the frantic mother, a newcomer in town, with no relatives, no family doctor to call.

A few seconds later, the cool-headed operator had summoned a doctor *and* an ambulance. A few minutes later, the sick child was being treated. And a few days later, he was back in his crib at home, almost completely recovered.

"To your prompt service I owe my baby's life," wrote the grateful mother to her local telephone office.

Such emergencies are all in the day's work for the men and women who have built such a splendid reputation for telephone service.

And you'll find in Exide Batteries that unfailing dependability so true of the best telephone tradition . . . no matter what the service . . . common battery, emergency reserve, signal or P.B.X., in small or large exchanges.



Exide
TELEPHONE BATTERIES

THE ELECTRIC STORAGE BATTERY CO., Philadelphia
The World's Largest Manufacturers of Storage Batteries for Every Purpose
Exide Batteries of Canada, Limited, Toronto

TELEPHONY, November 22, 1941. Volume 121. No. 21. Published every week on Saturday by TELEPHONY PUBLISHING CORPORATION, 608 So. Dearborn St., Chicago, Ill. Telephone Wabash 8604. Subscription $3.00 per year. Entered as second class matter September 4, 1908, at the Post Office at Chicago, Ill., under the act of March 3, 1879.

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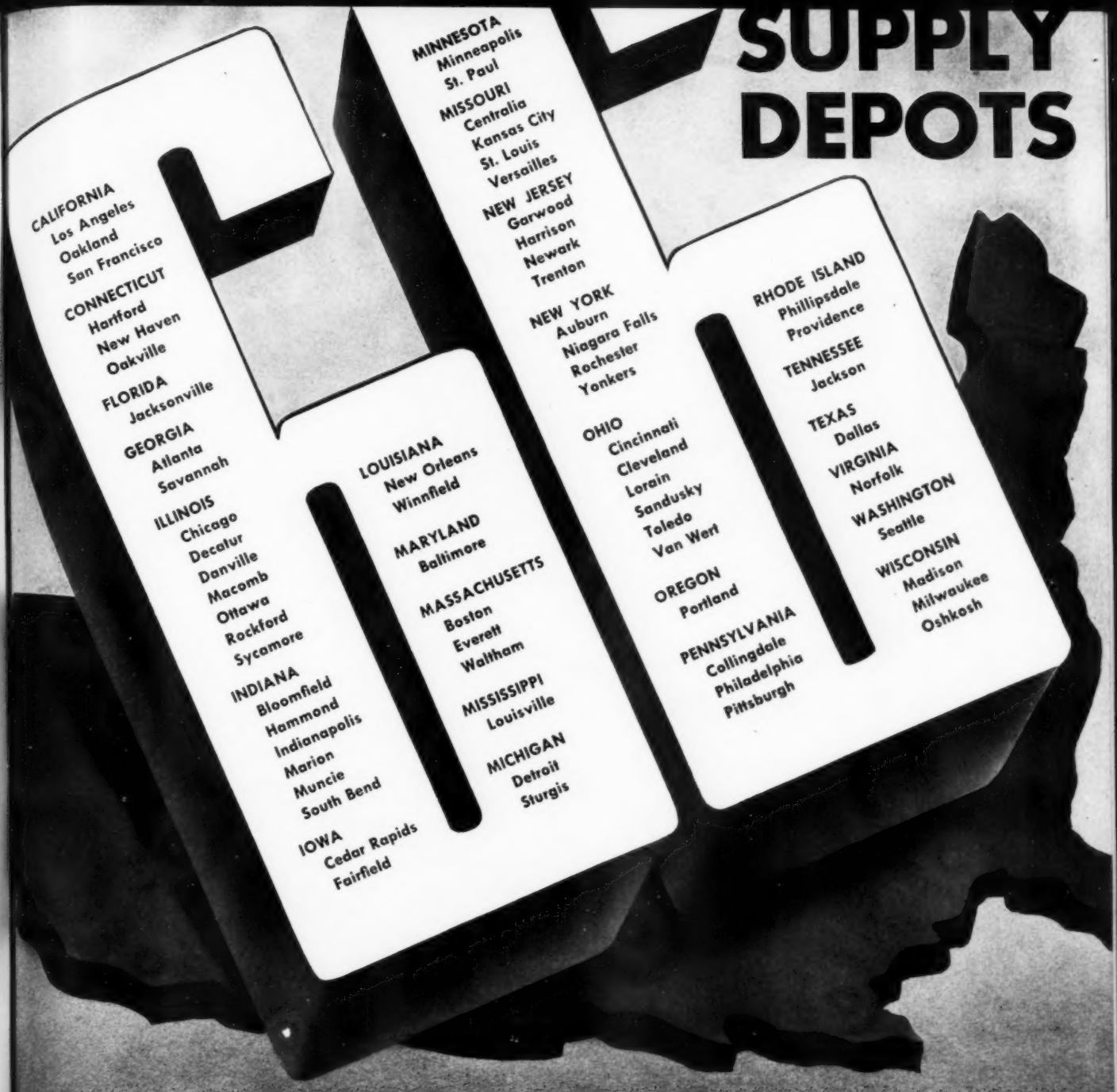
SUPPLY DEPOTS



Telephone companies buying supplies from Stromberg-Carlson receive the benefits of 66 supply depots located in 25 different states. From New England to California—from Washington to Florida, you will find these depots.

This is of extreme importance when shipments must be speedy. Of equal importance is the high quality of the construction materials and supplies sold by Stromberg-Carlson. Every item must meet exacting tests as to construction, performance, and durability before being added to the line.

If unvarying high quality, maximum length of service, and dependably fast shipments are what you're looking for, place your next supply order with STROMBERG-CARLSON.

STROMBERG-CARLSON TELEPHONE MANUFACTURING COMPANY—Factory and General Offices: 100 Carlson Road, Rochester, N. Y., U.S.A. Branch Offices: Chicago Kansas City San Francisco Toronto

Stromberg-Carlson

MAKERS OF VOICE TRANSMISSION AND VOICE RECEPTION APPARATUS FOR FORTY-SIX YEARS

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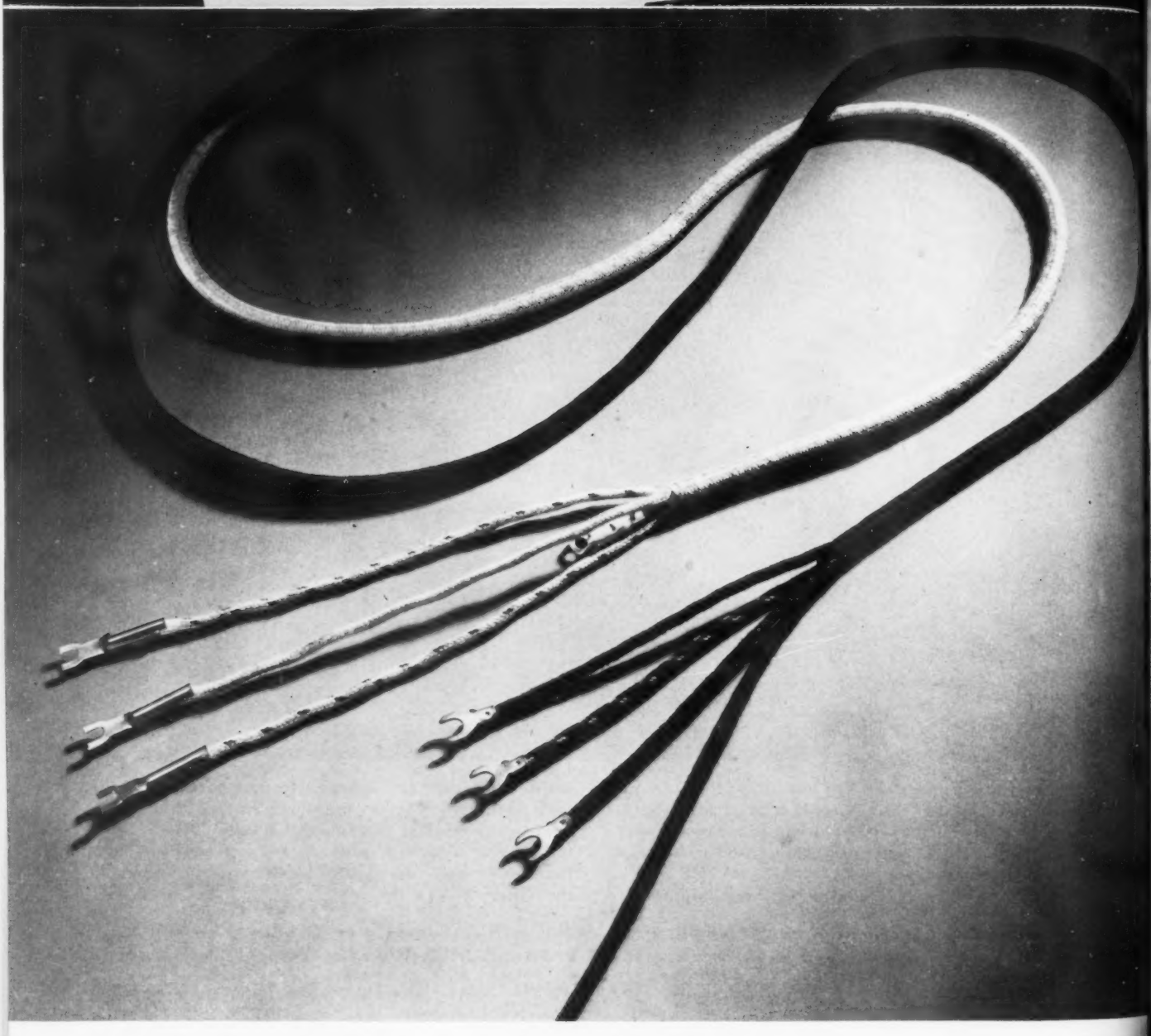
Make this test on



KELLOGG SWITCHBOARD & SUPPLY COMPANY

6650 SOUTH CICERO AVENUE ✓ ✓ ✓ CHICAGO, ILLINOIS

your switchboard

✓✓✓ AND SEE WHY KELLOGG CORDS

Save you money

BECAUSE most cords look alike, its hard to tell a good quality cord from a poor or mediocre one. But the thing that counts is the life that is built into them. And Kellogg Cords have always proved to be the best that money can buy from the standpoint of long-wearing quality and low cost service life.

If a penny or two saving on the selling price will tempt you to use some other cord, make a comparison test on your own switchboard . . . and see how much more it may be costing you to save that penny or two.

Here's a typical case that was performed in an exchange of one of the large Independent companies. . . .

A standard Kellogg Switchboard Cord which had been rebutted once was placed in service on cord pair No. 5 of position No. 13, in the answering location.

A new cord of another make was placed in service on the same cord pair of position No. 13, in the calling location.

Both cords installed, side by side, on August 27, 1940.

Service failure due to manufacturing or material defects caused removal of the cheap cord on December 26, 1940.

Kellogg Cord removed for second rebutting on April 30, 1941.

The cheap cord (although never used before) had to be replaced after *only four months.* The Kellogg Cord (already used for one term of service) operated as well as new eight months after its first rebutting!

A conclusive test like this proves that it doesn't pay to be "penny-wise and pound-foolish" when purchasing switchboard or telephone cords. For the quality of your service depends upon the quality of your cords. If you are not now using Kellogg Cords, why not make a comparison test in your exchange . . . and see where you can make the real savings that are worthwhile.

KELLOGG Cords

EXTRA LONG LIFE

EXTRA EDITION

Telephony

An Advertisement of Leading Supply Manufacturers Whose Products Are Distributed

KELLOGG LINE SUPPLIES

LABORATORY TESTS PROVE DURABILITY OF RHODES TELEPHONE WIRING NAILS

Rhodes No. 18 Telephone Wiring Nails and Rhodes No. 15 Washer Telephone Wiring Nails are the finest available for paired and triple-braided telephone wires. They are made to withstand hard driving, withdrawing, bending and immersion tests. The No. 15 Washer type has a fibre washer below the head for extra insulation. Both types are available in pin lengths of ½", ⅝", and ⅞", They come in Dark Green, Olive Green, Brown and Ivory. Try them and you'll like them.

ODD.....BUT TRUE!

A HURRICANE IN NEW ENGLAND IN 1938 BLEW HUGE TREES ACROSS TELEPHONE LINES OF CRAPO HTL-135 BEARING THE WIRES TO THE GROUND WITHOUT BREAKING THEM!
TELEPHONE
OUT OF ORDER
A RACETRACK BOOKIE HAD UNINTERRUPTED USE OF A PUBLIC PHONE BOOTH BY HANGING AN "OUT OF ORDER" SIGN ON THE DOOR (TELEPHONE CO. INVESTIGATORS MADE THE DISCOVERY)
"KAOLIN" ONE OF THE MAIN INGREDIENTS OF PORCELAIN, IS NAMED AFTER MOUNT "KAO LING" CHINA, WHICH FURNISHED CLAY TO THE FIRST PORCELAIN MAKERS!
PORCELAIN TELEPHONE INSULATORS ARE USED THROUGHOUT THE WORLD!

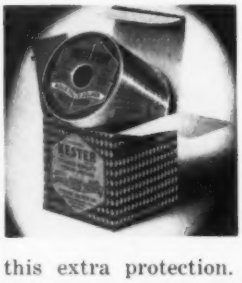
"Eveready" "Columbia" "Gray Label" Dry Cells Improve Transmission

The sustained voltage characteristic, for which "Eveready" "Columbia" "Gray Label" telephone cells have always been famous, is the reason why subscribers report improved transmission when these great batteries are installed. 40 years of constant development in the world's largest battery laboratory have produced this battery, which in addition to sustained voltage, is more economical because of its many hours of service life. Uniform quality, longer service life and improved transmission mean lower costs.

Bartlett Tree Trimmers Have Drop-Forged Blade That Stays Sharp—For Quick Clean Cuts

The most important thing to look for in a tree trimmer is a blade that will stay sharp even under heavy duty. That's why telephone men like this Bartlett Tree Trimmer so well. The special drop-forged, tool steel, side-cutting blade *holds its edge.* The Bartlett No. 1-W Tree Trimmer is easy to use, light in weight and assures quick clean cuts. The 9 to 1 ratio of the compound lever and pulley design and the positive return of the blade to full cutting position assure fast, efficient work. Specify Bartlett Tree Trimmers.

Kester Rosin-Core Solder Gives Extra Protection, Saves Trouble



Solder-j… tected joi… eliminate high… sistance poi… and intermit… open and cl… circuits. To s… trouble, e… joint should … this extra protection. For many y… Kester Rosin-Filled Solder has been k… as the most satisfactory product of… kind. Nearly 1½ tons of this solder … used every year in the Kellogg fact… alone! So to save your time and m… and improve transmission, insist that … joints be properly soldered with Ke… Solder. Available on 1-, 5- and 20-p… spools.

XUM

...ne Facts

EXTRA EDITION

...se Pr... Distributed by the Kellogg Switchboard and Supply Company

...LY SERVICE OFFERS EXTRAS

...lices Made with Nicopress ...eeves Equal or Exceed Breaking ...rength of the Conductors

When the fastest, ...est way to do a ... is also the best ..., there's no reason ... do otherwise. ...at's the situation ...th regards to ...ces made the Nico... ...s way—for every ... joint made with ...opress sleeves and ...s will . . . (1) ...al or exceed the rated breaking ...ength of the conductors; (2) be tight ... weld; conductor will not pull out; ... have high conductivity; (4) be easily ...le either in the air or on the ground. ... improved efficiency all along the line— ... Nicopress method has proved the ...wer.

...I-CONDUCTO BRONZE ...ROP WIRE IS FAMOUS ...OR ITS LONG LIFE

Millions of feet of Kellogg Bronze Drop ...ire are now in service throughout the ...untry—practical evidence of the un...al efficiency and long service life ... which this drop wire has become ...mous. Look at these features: A special armored coat of Mica; a better method of tracer identification, banishing forever the old wear-inducing raised tracer; long life, moisture-proof insulation; a solid bronze conductor for 85% conductivity, 32 ohms resistance, high tensile strength and ductility.

Sub-Cycle Ringing Machine Saves on Maintenance Costs

No routine maintenance is required on this Sub-Cycle Ringing Machine. It has no moving parts, making it a practically fool-proof source of economical ringing current. It operates on A.C. and produces a powerful, uniform ringing current independent of frequency variations. It is thoroughly field tested and has proved in hundreds of installations that it will give many years of dependable, economical ringing service. Also furnished with Pulsator. 5 models to choose from with 20 to 50 watt outputs.

Sharpshooters Are Foiled By Colorless "WT" Glass Insulators

Thanks to their low visibility, Whitall Tatum Glass Insulators are difficult targets for mischievous sharpshooters and rock throwers. The pure, colorless glass is achieved by precision processing of high quality ingredients. The Armstrong Cork Company manufactures all "WT's" to meet A.S.T.M. standards. They are actually stronger than standard steel supporting pins used in tests. They withstand temperature changes more severe than even the toughest service conditions can impose. When you specify "WT" Insulators, you're assured of top-notch, trouble-free performance.

Extra Services for Phone Men Are Part of Every Line Supply Order

In buying line supplies, whether its a carload of poles or a handful of wiring nails, there are other important factors to consider besides the merchandise itself.

There's the matters of service, advice, speedy delivery, and the company behind the product—little extras like these which often are as valuable as the material involved.

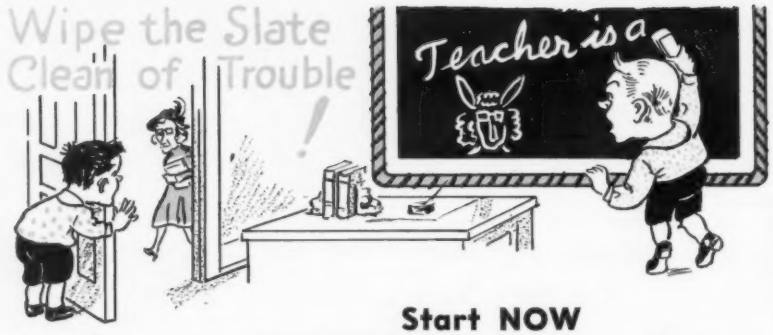
Kellogg line supplies are made by hand picked, quality manufacturers. These manufacturers co-operate with Kellogg to the fullest extent in making supplies that telephone men can depend on — supplies that do *more* than is expected of them.

Kellogg service is famous in the industry. Over 50 well-stocked line material centers are maintained in order to give telephone men the prompt service they need in these busy times.

The experienced telephone men who handle the line supply orders are well able to offer constructive suggestions—helpful hints that may save time and money and extra work.

Every line supply item carries the famous Kellogg "Double Guarantee". This means that it is guaranteed not only by Kellogg, but by the manufacturer as well.

These *extras*, these things that go with every order, large or small, *are* important. So important, in fact, that more telephone men every year prefer to order their line supplies from Kellogg.



Start NOW
to Splice the *Nicopress* Way

If you really want trouble-free quiet line joints there's just one way to do the job and that's the Nicopress Way.

Working on the poles or on the ground your linemen will make splices in double quick time with an easy to handle Nicopress Tool. The completed splices are neat, small in diameter, and exceed the rated breaking strength of the wires. In fact you'll find "Nicopress" the answer to all your splicing problems.

Order from your Jobber today.

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Canadian Mfr.—N. Slater Co., Ltd., Hamilton, Ont.
Export Distributor—International Standard Electric Corp., New York, N. Y.

MAKE IT A *Nicopress* SPLICE

The printing of telephone directories is an art.

It takes not only a knowledge of the needs, but specialized equipment to be assured that each directory is complete and accurate.

Accuracy and speed of delivery—the fundamentals of a Cuneo produced directory.

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PLANTS ALSO LOCATED IN
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TELEPHONY

The Journal of the Telephone Industry

November 22, 1941 — Vol. 121, No. 21

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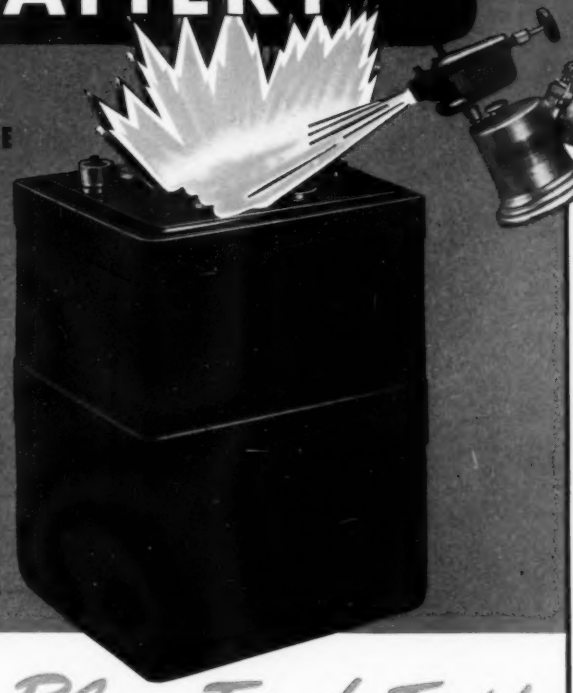
PHILCO FLOTÉ *Explosion Proof* BATTERY

FOR TELEPHONE SERVICE

ANOTHER PHILCO ACHIEVEMENT



HF CAPACITIES
4000 to 7000 AMPERE HOURS

FHR CAPACITIES
840 to 1680 AMPERE HOURS

EHR CAPACITIES
180 to 660 AMPERE HOURS

The Blow Torch Test!

This convincing test tells the story of the Philco "Explosion Proof" safety feature. Even though the explosive mixture of hydrogen and oxygen emitted from the battery is ignited, there is only a harmless report . . . with no damage to employee or adjacent equipment. Another achievement of Philco Engineers . . . bringing a new degree of safety to Telephone Service installations. And, look at these other Philco features:

- ★ A COMPLETE FLOTÉ LINE—IDEAL FOR STANDARDIZATION.
- ★ REQUIRES CONSIDERABLY LESS SPACE THAN GLASS.
- ★ TIGHT ASSEMBLY IN HIGH TENSILE STRENGTH RUBBER JARS.
- ★ FLOTÉ PLATES—SPECIALLY DESIGNED FOR FULL FLOAT.
- ★ SPRAY-PROOF WITH BUILT-IN ELECTROLYTE LEVEL INDICATORS.
- ★ FLOTÉ PERMITS PERFECT INDIVIDUAL CELL PARALLELING.

Specify Philco Floté Telephone Batteries on new central office and PBX equipment and for replacement batteries.

PHILCO, Storage Battery Division, Trenton, N. J.

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Rebuild old equipment

THIS ECONOMICAL WAY...

you'll help conserve critical materials for America's defense effort and save money for yourself as well!

How much old equipment do you have standing idle on shelves and stored away in your stockrooms? Probably more than you realize! Much of it may still be usable if turned over to our Autelco Rebuilding Service for complete scientific reconditioning.

By utilizing Autelco Rebuilding Service to bring dead telephones, P.B.X.'s, P-A-B-X's and other equipment back to life, you reap three important benefits.

(1) You quickly meet the emergency demands of your own exchange area with soundly rebuilt equipment capable of giving excellent service;

(2) In this handling of the emergency demands you save money both from our low "AR" prices as well as by utilizing investment in equipment now standing idle;

(3) you help materially in the great movement to conserve critical materials for America's defense needs.

Try Autelco Rebuilt Service for a few sample items selected at random from your stockrooms. See how modern, fresh and new-looking is the equipment you get in exchange! If you have no old items available for rebuilding or exchange, you can purchase many rebuilt articles for cash directly from our stock at considerable savings over new equipment. Write for Bulletin 1640-B, which explains our "AR" rebuilding plan in complete detail. Send for it—today!

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ELECTRICAL ENGINEERS, DESIGNERS AND CONSULTANTS

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CLEARS TROUBLE IN A HURRY

Averages $6.00 Saving per Fault

This easy-to-use Wheatstone Bridge puts its finger on faults—locates grounds, crosses or opens—enables trouble-shooters to clear lines or cables in minimum time.

A recent survey among users indicates that this Test Set saves from 1 to 8 hours in locating faults, as compared with other methods. In terms of man-hour cost of trouble-shooting, it saves an average of $6.00 per fault. From this average figure, it appears that after locating 21 faults the instrument has saved enough to pay for itself. After its 21st location, this test set is actually earning money.

These savings, as well as the benefits of subscriber good-will are yours with the purchase of one of these Test Sets. Price is $125.00. If more information is required write for Catalog E-53-441 (1).

A Free Handbook explaining methods of using this Bridge for locating grounds, crosses, opens and other faults, will be sent on request. Write for Note Book E-53-441 "Notes on Fault Location in Cables."

5430-A
Type U
Test Set

LEEDS & NORTHRUP COMPANY, 4981 STENTON AVE., PHILA., PA.

LEEDS & NORTHRUP

MEASURING INSTRUMENTS · TELEMETERS · AUTOMATIC CONTROLS · HEAT-TREATING FURNACES

Jrl Ad E-53-441(4)

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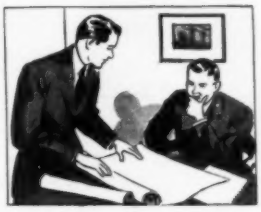
An Engineering Organization

● Before the first frame member is cut or a single sheet is sheared or punched, our Engineering Department has built the body on paper, complete to the last detail. The size and location of the smallest part are important details specifically disposed of in blueprint form before construction begins.

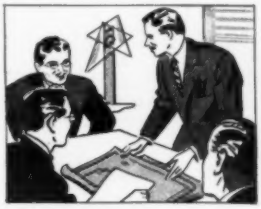
In scientific planning of this kind, guesswork is eliminated and mistakes are caught before they take form in construction.

The personnel of American's Engineering Department has been recruited mostly from men engaged in public utility service; and in consequence they approach their problems with a full realization of the requirements of the situation.

Not only in design and planning, but at all stages of construction American bodies are constantly under the supervision of engineers. The plant works intimately with the Engineering Department, with the result that all American bodies take form exactly as planned and fully meet specifications.



ENGINEERS representing A. C. & B. discuss your requirements at your desk.



ENGINEERS confer over basic plans in designing all American bodies.

ENGINEERS supervise all details at every stage of development.

ENGINEERS oversee the construction of bodies and equipment all the way through the shop.

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MANUFACTURER OF STANDARD EQUIPMENT FOR PUBLIC UTILITIES

LINE CONSTRUCTION BODIES · MAINTENANCE BODIES · GENERAL SERVICE BODIES
METER BODIES · AERIAL LADDERS · POLE TRAILERS · CABLE SPLICING TRAILERS
WINCHES · POWER TAKE-OFFS & POLE DERRICKS · REELS & ASSOCIATED EQUIPMENT

Send for illustrated descriptive circulars

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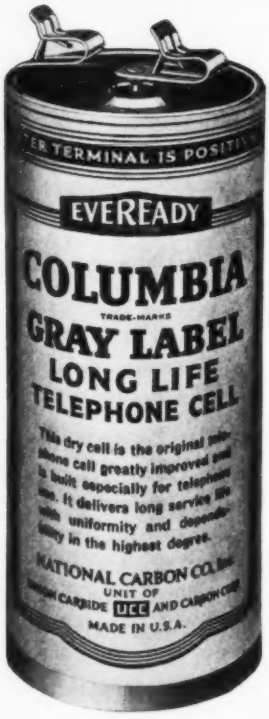
Q: What is the best Dry Cell for Magneto Telephone Service?

A: A Dry Cell Especially Built for that job!

A telephone cell will last 50% longer than the best ignition cell when used for magneto telephone service.



Are your "service station" subscribers throwing money away by using *ignition* cells in magneto telephones? Surprisingly, quite a number of telephone users in rural areas do.

You can render a service to such subscribers by pointing out the inefficiency of ignition cells for telephone work. Ignition cells are especially designed to provide the spark when gasoline engines are started . . . and for other heavy-duty service. They must be capable of delivering high initial surges of energy. Ignition cells are designed for entirely different conditions than those encountered in magneto telephone service.

Telephone cells, on the other hand, are especially designed for magneto telephone service . . . where initial surges are low, and the average current consumption is light. Such cells are built to provide long months—even years of service—at their particular job.

Tell your subscribers that, for telephone service, *telephone cells* last longer . . . result in better transmission. We make *both* ignition cells *and* telephone cells. We *know* that each type of cell lasts longer when used for the job for which it was built. Since telephone cells cost no more than ignition cells, telephone users save money when they buy them.

You might also tell your subscribers that "Eveready" "Columbia" "Gray Label" Long Life telephone cells are used by more independent telephone companies than any other brand because of their *sustained voltage . . . uniformity of performance . . . longer life.*

NATIONAL CARBON COMPANY, INC.

Unit of Union Carbide and Carbon Corporation

UCC

General Offices: New York, N. Y. • *Branches:* Chicago and San Francisco

The words "Eveready," "Columbia" and "Gray Label" are registered trade-marks of National Carbon Company, Inc.

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"These Long-span Service Drops Stand on Their Record

". . . they are no problem. High tensile MONOTYPE DROP WIRE withstands the 'full 200-lb. test'. With a high-grade rubber insulation, tightly braided, pitch and mica finished, it is weather and abrasion resistant. For long service – for low cost per year – there's nothing better." That's on the record.

MONOTYPE DROP WIRE

Manufactured by

GENERAL CABLE CORPORATION

DISTRIBUTED BY

AMERICAN AUTOMATIC ELECTRIC SALES COMPANY

1033 WEST VAN BUREN STREET • CHICAGO, ILLINOIS

BRANCH WAREHOUSES AT DALLAS, KANSAS CITY, LOS ANGELES, RICHMOND (VA.) AND SAN FRANCISCO

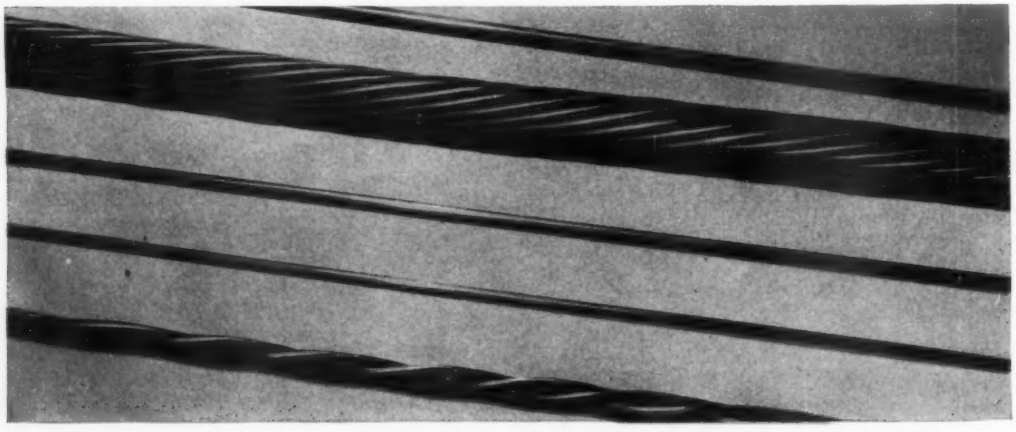
USE COPPER WISELY -do not waste

COPPER . . . vital in a thousand ways to defense . . . must be used wisely. For example, using OVERSIZE copper conductors to obtain MECHANICAL strength is wasteful of precious material. The steel core of the Copperweld wire provides mechanical strength in Copperweld or Copperweld-copper Conductors. The copper need only do the job that copper does best—conduct electricity.

Typical applications of copper-saving Copperweld are: power conductors for electric transmission and distribution systems, telephone line wire, telephone drop wire, telephone interior wiring, railroad signal line wire, railroad telephone line wire, and telegraph line wire.

Copperweld wire may also be used for many mechanical and non-electrical applications where brass or bronze wires have been employed.

COPPERWELD STEEL COMPANY, GLASSPORT, PENNA.



COPPERWELD AND COPPERWELD-COPPER CONDUCTORS CONSERVE COPPER

Poles should be placed a safe distance from the highway. The poles need not be overly high but should be strong.

Winter-Condition Your Rural Lines

By RAY BLAIN
Technical Editor

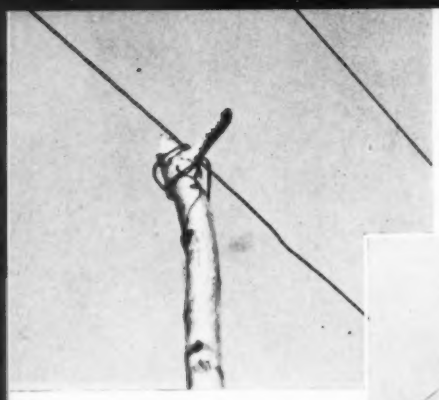
A LOT is heard these days about having the car, furnace, and even the house winter-conditioned in order that they will not cause trouble or excessive maintenance expense until the roses bloom again. This is an excellent practice, and even greater benefit may be realized when applied to rural lines. Not only does it prove less expensive to repair weak points in a line now, rather than wait until they cause trouble in cold winter weather, but interruptions in service will also be avoided. Telephone service always increases in value during stormy weather and failure at such times sometimes creates lasting ill will for the telephone company.

In this article an attempt will be made to describe how rural lines may be winter-conditioned at a reasonable cost, so that many trouble trips in cold weather may be avoided. It is also believed that this practice, if properly observed, will prove a real economy for any telephone company.

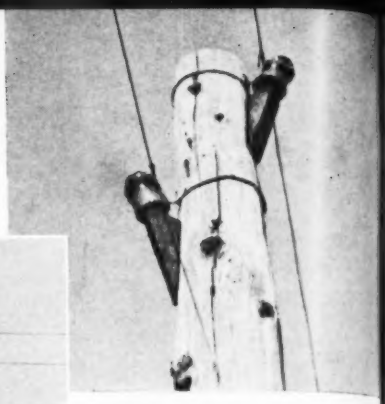
While various plans may be worked out locally for winter-conditioning of lines which will prove entirely satisfactory, the following sequence is recommended as it has been used by numerous companies with complete success over a long period of years. First, untie all line wires on the lead for a distance of about one mile, preferably between two corners. The wire may be loose-tied to the insulators to avoid causing trouble during the overhaul. Next, test all poles by rocking them back and forth with a pike pole. Rock them hard, for it is far better to break a pole when you are on the job than to wait and have it fail when the ground is frozen and the wire loaded with ice. Defective poles should be stubbed, reset or replaced.

Poles need not be overly high for rural line use except at road crossings or other obstructions, but they should all be strong. Leaning poles should be straightened, tamped solidly in place and banked good with earth. Straight poles will carry a tremendous overload, but a leaning one may kick out of the ground and cause serious trouble when the ice load accumulates on the wires. Poles located near highways, where they may be damaged by passing automobiles or trucks, should be moved to a safe location. Poles weakened due to having earth removed from around them during grading operations should be reset.

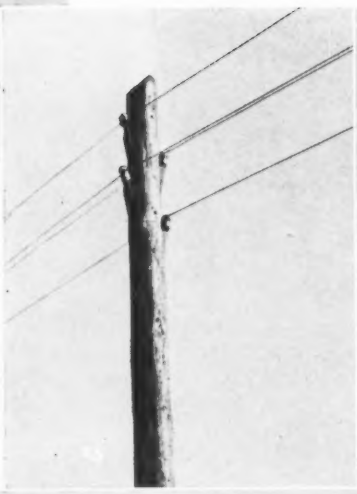
Defective crossarms, pins and insulators should all be replaced. Floaters will cause trouble and usually require a replacement of the pin or bracket to correct



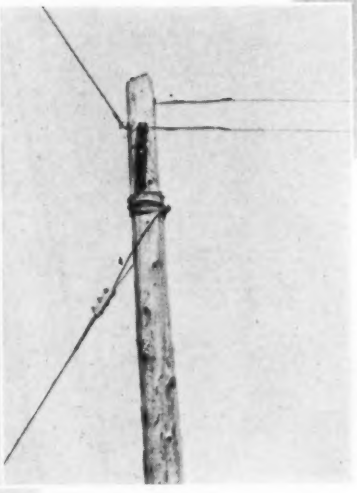
ABOVE: Never tie wire to poles but use an approved type insulator if good service is expected.



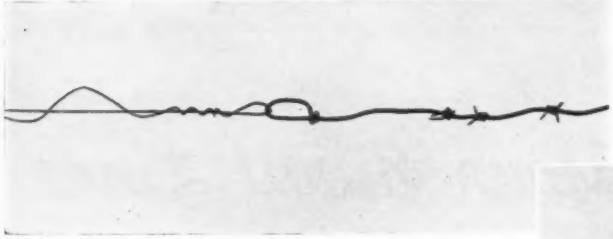
ABOVE: Reinforcing brackets with a wire wrap.



RIGHT: These line wires are properly spaced to provide maximum clearance.

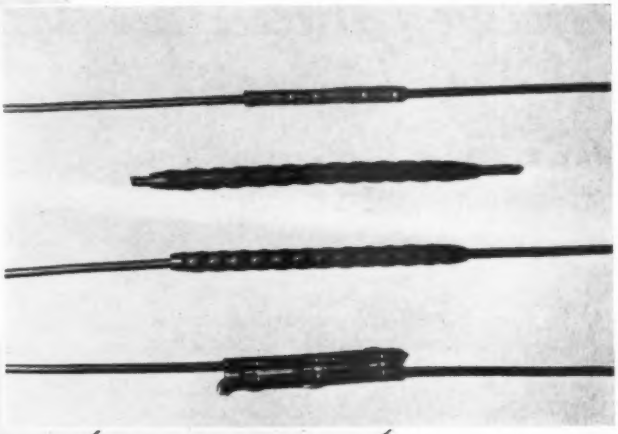


LEFT: A good example to follow. Note dead-end, drop wire, solderless connectors, guy and three-bolt clamp.

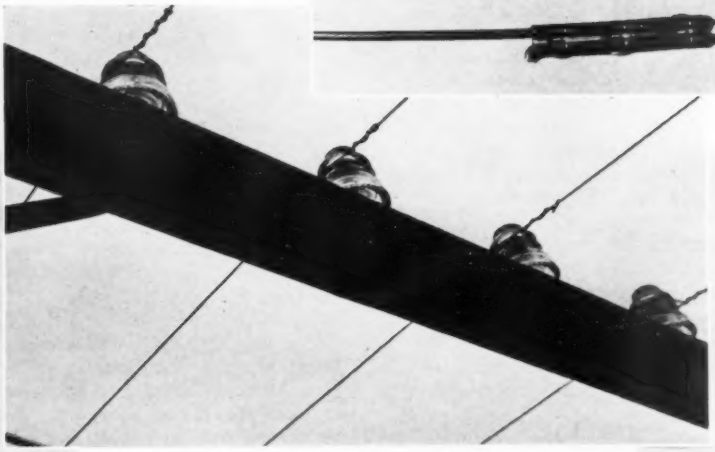


ABOVE: Joints like this are horrible examples of what NOT to do when repairing rural lines. This situation should be corrected with a compression type sleeve.

BELOW: Three different kinds of compression type sleeves.



RIGHT: Line wire should be tied in properly on insulators.



LEFT: Defective crossarms should be repaired without delay before more serious trouble develops.

RIGHT: Leaning poles should be straightened for they may not withstand high winds or carry the sleet load of winter.

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Broken poles should be stubbed, reset or replaced.

the cause. All defective insulators should be replaced for they are certain to cause trouble or transmission loss in time. Cracked or chipped insulators should be considered defective and replaced with the least delay.

Wood brackets should be mounted on poles so as to provide maximum clearance between all line wires. Double brackets or some form of reinforcement should be used on corners and other points where the load is extra heavy. A bracket may be reinforced by the use of a special fixture now available or by merely wrapping wire around both the bracket and pole, and stapling in place.

Good corners are essential in providing good service on any telephone line. When you are suspicious of a corner's strength, it should be rebuilt without delay. Defective corner poles should be replaced with good solid timber set to the required depth, well raked and guyed. When sufficient space is not available for guying, a push brace may be used to advantage. Good anchors are very important on all corners and they should be set to a proper depth. Patent earth anchors suitable for every need are now available at a reasonable cost and they always prove a good investment. Either the eye bolt or the wrap method may be used to attach the guy strand to the pole. Guy clamps are to be preferred to serving the guy strand for attaching to both anchor and pole.

Rusty line wire is detrimental to transmission and can never be depended upon to carry the extra load of a sleet storm. Splices in rusty wire are always trouble-makers and the only remedy is to replace them immediately. Sections of rusty wire should also be replaced as these are sure to cause trouble when called upon to carry heavy sleet in winter or the extra load of a high wind.

Compression type sleeves are reasonably priced and may be used to advantage in the construction or repair of rural lines. When the wire is good and the splices are doubtful, it is far better not to take a chance but replace them as soon as possible with compression type sleeves. This practice will invariably improve service and save trouble. A served joint or a twisted splice may corrode in time and most surely cause trouble of the difficult-to-locate kind. Compression type sleeves of a special type may also be used to advantage in the deadending of line wire. These special sleeves make the deadending of wire a simple matter and there is little doubt about their holding and never causing trouble.

When all splices have been repaired, the line wire should be pulled to the proper tension as indicated by approved sag tables. Line wire should never be pulled too tight as this places an excessive strain on it and serves no useful purpose. All wires of the lead should be pulled level and to equal tension. Then all wires will swing through the same arc and at the same time. When one wire of a line is tighter than the others, the slack ones are likely to wrap around the tight wires in a high wind.

When the line wire has been pulled to the proper tension, it should be tied-in on insulators in an approved manner. Properly-made ties play an important part in giving good, reliable telephone service on an open wire line. Ties should ordinarily be of the same gauge as the line wire for best results and wrapped tight so as to hold the line firmly in the groove of the insulator. Neither should ties be too tight or they may burn the line wire. Loose ties also damage the line wire due to vibration and hammering of the wind. The line wire should be placed so that it pulls against the insulator and not the tie wire.

Drop wires from the line into the house are important although they often cause excessive trouble when not properly installed. It was formerly the practice to run such drops on metallic circuits by the use of open wire. This arrangement did not prove satisfactory due to the fact that the two wires tangled easily and caused an annoying humming noise at the house due to vibration. At the present time, these drops are usually run with twisted pair or parallel drop wire which make a good, serviceable installation.

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When a part of the earth has been removed from the base of the pole by road grading operations, it should be reset.

NEW ALLOCATIONS PROGRAM

Will Further Curtail Scarce Materials

By FRANCIS X. WELCH
"TELEPHONY'S" Washington Correspondent

Possible effect on the telephone industry of new policy on the allocation of scarce materials, industry by industry, discussed by Mr. Welch. . . . It means less, instead of more, materials available. . . . New allocation program will not throw out present priority rating set-up.

PENDING CHANGES, if any, within the OPM organization to handle telephone priorities have not been clarified at this writing. Therefore, we have an opportunity, while OPM and the Defense Communications Board are still marking time, to check over the forthcoming OPM policy of allocating scarce materials, industry by industry.

What will this new allocation program mean to the telephone business, both operating and manufacturing? What will it mean to business in general? How will it operate? Does it mean an end to the present system of priority applications and certificates? Will it mean an end to the automatic repair and maintenance priority set-up?

Obviously, these questions cannot be answered in detail until OPM organization for handling priorities has been perfected and until a Telephone Industry Allocation Program has been originated, negotiated, and approved by the Supplies Priorities and Allocation Board (SPAB). But it is not too early, by any means, to get a working idea of how this new allocations set-up is going to function and why it is necessary.

First of all, we might as well understand that the new allocations program is *not* designed to make materials available to private industry in greater quantities. On the contrary, it *is* designed to curtail more and more the available supply of scarce materials because of shrinking stocks and increasing defense requirements.

In other words, the net result of the allocation program on American industry as a whole will be *less*, not more, materials than they have been getting in the past. However, the allocations program *is* designed to assure a more orderly sequence of industrial preferences. This should give essential utility services, such as telephone companies, a more secure outlook than they have had in the past.

From the outset, the telephone industry might as well give up the idea that it is going to get more materials for *new* construction. It can be reasonably assured of actually getting materials to repair and maintain existing plant and to take care of expansion essential to the national defense.

This does not sound very hopeful and it is not intended to. The outlook on essential materials grows darker every day. On November 14, the OPM Engineers Defense Board announced that "with a demand for more than 150,000 tons of copper for direct military and lend-lease use during the current month (November), only an estimated 128,197 tons of this critical materials is available." Make your own subtraction and you can figure just what is going to be left over for all civilian industry after the Army and Navy get through.

On the same day OPM announced (preference order M-2-b) that hereafter *all* magnesium and magnesium products available in the United States are to be entirely diverted to direct and urgent defense production. The outlook grows blacker for chrome, tin, and other metals, of which the danger of imported supply being cut off is ever present.

Donald Nelson, executive director of SPAB, himself gives us the reasons why it is necessary to shift from the priority rating system to an allocation program. In an address on November 13 to the New England Governors at Boston, Mass., he reviewed the working of the priority system so far (the use of the PD-1 applications and all the rest of it). He said:

"Such a system works very well when the shortages involved are moderate. If there is *almost* enough to go around, the man with a low rating will still get the stuff he needs, and he will get it with reasonable promptness. But where the shortages are very bad—where there is not nearly enough of a given material to go around—then the priorities systems tends to fall short. Priority

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ratings tend to depreciate like paper money in a period of inflation; it takes higher and higher ratings to get any kind of delivery at all, and finally the whole system fails to provide the control that must be had.

"We have got to that point today. For every pound of aluminum which can be allowed to go on the civilian market there are ten ready and eager customers. There are three customers for every pound of copper, two for every ton of steel. Priority ratings cannot cope with such a situation. So we are now moving into the field of allocations—rationing, if you believe in calling things by their most unpleasant names."

Mr. Nelson went on to say that the new allocations program must be based on an adequate, detailed picture of what the national requirements are going to be—both the military requirements and the civilian requirements. These must be balanced against an equally detailed picture of the nation's supply of all these critical materials. Mr. Nelson continued:

"The steps to get these pictures of requirements and of supply have already been taken. Within a few months the picture will be fairly complete. Then we can work out, industry by industry, the quantities of the different metals which are going to be available to meet civilian demand during the coming year. Programs can then be evolved so as to divide these materials among those industries as intelligently and equitably as possible. There will be curtailments, of course; I can think of no purely civilian industry which will get all of the materials it would like to have. The less essential an industry is to the national well-being, the sharper will be the curtailment, of course."

* * *

Your correspondent has made considerable effort to get, in advance, an outline of just how the new system is going to work. There has been much general description in the newspapers—some of it quite inaccurate. You can, perhaps, grasp the significance of the program more completely if you try to understand its procedure step-by-step.

Now, don't get the idea that the present system of priority ratings is out the window. It is not. Until further notice you will still file PD-1 applications with OPM if you want a special priority on a particular item, and think you are entitled to it because of defense requirements. The same goes for Project Ratings discussed in last week's issue of TELEPHONY.

The same goes for regular repair and maintenance orders to manufacturers under P-22.

(Indeed it would be a very good idea if the telephone industry were to make fuller usage of P-22 from now on, in order to show up more clearly the operating needs of the industry when OPM gets around to determining an Allocations Program for the telephone industry. Some operating companies have not been using P-22 even where they have been entitled to use it. This is not going to make it look good for the industry and it is not making it any easier for the manufacturers to get materials ahead on their supply ratings.)

In other words, the following eight steps are only a "preview," so to speak—very rough, very sketchy—of what is to come:

1. Each major industry producing finished products (like automobiles and radios) or rendering an industrial service (such as operating utilities and their manufacturers) will have its own Planning Branch in OPM. A Planning Branch may combine a number of allied industries such as farm machinery (tractors, cream separators, etc.), or it may be confined to a single unit (such as railroads). But there will be an attempt to have a rational separation of industrial categories—no "cats and dogs" in the same kennel.

2. It will be the duty of the OPM Planning Branch for a given industry—let us take some hypothetical industry which manufactures "Widgets"—to originate an Industrial Allocation Program. This program will determine how many and how badly widgets will be needed for the coming year. Also, what is the *smallest* amount of scarce materials necessary to make the *least* number of widgets that the nation can possibly get by on, for civilian as well as defense purposes.

3. To work out this program it will be necessary for the OPM Planning Branch to have advice and technical information from the industry, the Army and Navy. The latter will estimate the minimum requirements of widgets for national defense. The industry itself, through a separate Industry Advisory Committee will give the OPM Planning Branch all the dope on just how many widgets were required in the past. This committee will estimate how many would be needed in the future (a) if the supply were *unrestricted* and (b) if the supply has to be *restricted* to varying degrees. The Industry Advisory Committee will also instruct the OPM Planning Branch on just how much of each kind of scarce material has to go into making a widget and why. (In the case of telephones, all consultation under this heading may be fused into a committee of the Defense Commodities Board.)

4. After this consultation with the Industry Advisory Committee and the military, the OPM Planning Branch develops the first tentative draft of an Industry Allocation Program. This is next referred to a number of other OPM branches known as Raw Materials Branches. There is one for steel, one for copper, and so on. Each of the RM branches has before it an overall picture. This is a picture of how much steel, for example, the nation as a whole will need for defense and civilian purposes, and just what proportion of that amount of steel is going to be actually available on the basis of known production schedules. The Raw Materials Branch may also have some ideas of its own as to just how important widgets are in this general demand-and-supply picture.

5. After checking and double-checking with the different OPM Raw Materials Branches, the OPM Widget Industry Program is ready for its last inspection within OPM. It goes to the OPM Bureau of Industrial Conservation which, figuratively, will be manned by a bunch of Scotsmen. They will go over the program with a fine-tooth comb, poke and pry into it to see if some additional scarce material cannot be squeezed out of it through substitution, standardization and simplification of patterns, etc. It might cut the program down as much as 5 per cent on copper, 2 per cent on steel, and so forth.

6. When all are agreed (the OPM Planning Branch, the OPM Raw Materials Branches and the Scotch outfit) the Widget Industry Allocation Program is now ready to go to the Supply Allocations and Priorities Board, SPAB, for final action. In brief, the program will say something like this: "Whereas in 1940 the national widget

LATEST AMENDMENTS TO P-22

The OPM Division of Priorities on November 10 announced a number of amendments to preference rating order P-22 covering repair, maintenance, and operating supplies for essential industries, including telephone and telegraph companies. (TELEPHONY, September 13 and 20; October 25.) Among these amendments was one of special interest to the telephone industry. It is an amendment to Section 958.1(b)(6). This amendment makes two important changes.

It deletes the provision of the previous order which refused assistance in replacement of equipment by improved equipment, and prohibited replacements "unless such existing installation is beyond repair." It has been found impossible, and in many cases undesirable, to require replacement with equipment exactly like the old. The procedure frequently held the producer to the use of antiquated equipment, and sometimes made it impossible for him to obtain any replacement equipment at all.

The entire Section 958.1(b)(6), as amended, now reads as follows:

"(b)(6) The terms 'Maintenance,' 'Repair' and 'Operating Supplies' *do not* include material:

(i) for the improvement of a producer's property or equipment through the replacement of material in the existing installation, unless such equipment is beyond repair;

(ii) for additions to, or expansion of, such property or equipment;

(iii) which is of a type not heretofore carried on the producer's books under 'Maintenance,' 'Repairs,' 'Operating Supplies,' or the equivalent."

Among other amendments to preference rating order P-22 announced at the same time (of no special interest to the telephone companies) were those: (1) bringing natural gas, transportation, toll bridges, canals, and irrigation under the coverage of preference rating order P-22; also those using tools to repair or maintain the property of other producers, such as machinery repair shops, blacksmiths, and other maintenance operators; (2) defining "operating supplies" as not being materials acquired solely to distribute, store, or transport; (3) changing the method by which exemption of various industries from restrictions on deliveries, withdrawals, and inventories may be granted.

The last-named amendment, concerns Section 958.1(g), which now reads as follows:

"*(g) Restrictions on Deliveries, Withdrawals, and Inventory.*

(1) Except as provided in paragraph (g) (4) and (5), no producer shall, during any calendar quarterly period, accept deliveries (whether or not rated pursuant to this order) of any items of material to be used as Operating Supplies or for Maintenance or Repair the aggregate dollar volume of which shall exceed 25 per cent of the aggregate dollar volume of the withdrawals of items of material of the same class as carried on the producer's books from stores or inventory during the calendar year 1940.

(2) Except as provided in paragraph (g) (4) and (5), no producer shall, any time, accept deliveries (whether or not rated pursuant to this order) of any item of material to be used as Operating Supplies or for Maintenance or Repair until the producer's inventory and stores of items of material of the same class, as carried on the producer's books, have been reduced to a practical working minimum. Such practical minimum shall in no case exceed the aggregate dollar volume of items of material of the same class, as carried on the producer's books, in inventory and stores of December 31, 1940, or, at the producer's option, at the close of the producer's fiscal year ending during the calendar year 1940.

(3) Except as provided in paragraph (g) (4) and (5), no producer shall, during any calendar quarterly period, make withdrawals from stores or inventory of any items of material to be used as Operating Supplies or for Maintenance or Repair the aggregate dollar volume of which shall exceed the aggregate dollar volume of the withdrawals of such items of material of the same class, as carried on the producer's books, during the corresponding quarter of 1940, or, at the producer's option, 25 per cent of the aggregate dollar volume of the withdrawals of such items of material of the same class as carried on the producer's books during the calendar year 1940.

(4) From time to time the director of priorities may determine that certain producers or classes of producers are exempt, in whole or in part, from the restrictions contained in paragraphs (g) (1), (2), and (3).

(5) Restrictions contained in paragraphs (g) (1), (2), and (3) shall not apply to any producer during any calendar quarterly period in which the total volume of his purchases or withdrawals of material for Maintenance, Repairs, and Operating Supplies does not exceed $2,500."

production was one thousand units valued at so many dollars, and whereas as the 1942 'potential demand' is 1500 Widgets valued at so much; NOW THEREFORE, the 1942 quota of Widgets will be restricted to the production of 1200 units." Then will follow a notation of the estimated requirement of raw materials and intermediate products which will be necessary to turn out the 1942 quota of widgets. It will conclude with a proper order to "allocate" such materials to the demands of the widget industry for such quota production.

7. The action taken by SPAB on the plan will be formal but quite discretionary. SPAB reserves the power to approve, reject, or modify the Industry Allocation Program after it comes from OPM. SPAB at this stage will function as a sort of theoretical appellate court of last resort in priorities matters. Actually, it will be just a brief wailing wall for industrial, labor, military, and consumer groups who feel they have been shortchanged during the OPM proceedings. Approval of the Industry Allocations Plan at this stage is likely to be swift and reasonably sure.

8. Now the program comes back to the OPM Priorities Division for "enforcement" and here

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Approved Maintenance Practices

By DANIEL SEITZ
Cable Superintendent,
York Telephone & Telegraph Co., York, Pa.

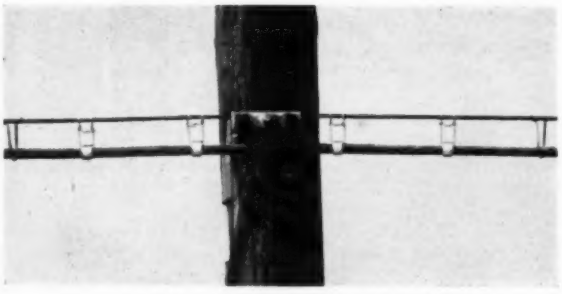
PART X. Continuing the discussion of cable from the November 8 issue, this installment of a series (especially written for plant men) emphasizes that cable supports must be properly installed in order to insure satisfactory service. Good tree clearance is important.

CABLE FAILURES near poles have received serious consideration by telephone men and numerous special supports or hangers have been developed in an attempt to eliminate the cause of this trouble. All of these devices, if properly installed, will give satisfactory service.

The standard cable ring is a spring type and grips the strand in such a manner as to hold the cable quite rigid. However, if we use any less rigid support adjacent to poles, it is obvious that the bowing action will also be increased. Wind pressure exerted against the cable between poles causes it to swing, which results in a hinge action of the cable and strand at the poles. Due to this hinge action, the cable movement at the poles should not be entirely eliminated.

A wood block of the correct thickness should be used as a gauge to measure between the cable and the strand when attaching the zinc band type supports. A long spacing of supports adjacent to poles, especially on small cables, will permit the cable to sag and may eventually cause trouble and cable failures.

Frequently, open wire lines are replaced by cable



A good job of supporting cable at the pole.

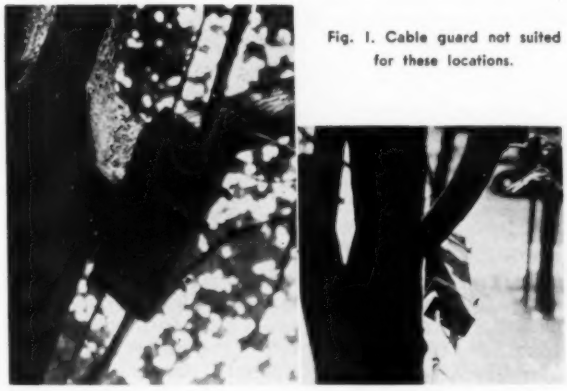
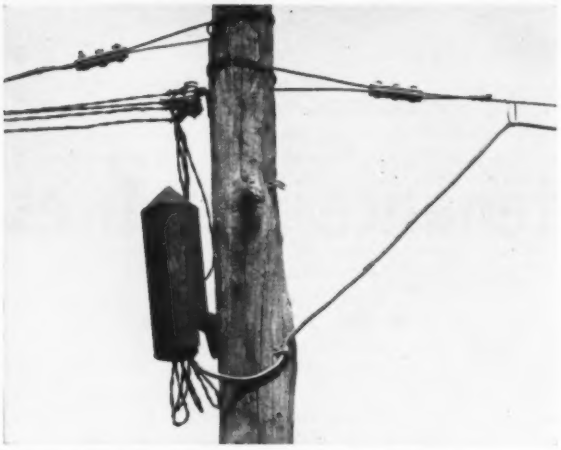


Fig. 1. Cable guard not suited for these locations.

as a preventive measure due to excessive trouble caused by trees. If the cable is not properly placed between or under the limbs of trees, the result will probably be that more trouble and interruption to service is caused and at a greater cost than with the open wire. Good tree clearance must be provided originally on new cable, and this clearance maintained thereafter, to insure satisfactory service. Some plant men seem to be of the opinion that to merely wrap a section of discarded auto tire around the cable to protect it from the limb is all that is required to prevent injury. In this connection, it should be remembered that it is seldom the actual rubbing of the limb against the cable that causes the sheath failure, but that trouble is actually caused by the constant bending of the sheath as the limb sways back and forth in the wind.

The removal of large tree limbs (when permission can be obtained) so that the cable may swing free



Badly-maintained terminal. No bridle rings, pipe straps or clamp serve to prevent cable from pulling away from pole.

is the best type of preventive maintenance. An angle iron bracket attached to a pole in such a manner as to hold the cable and strand in the clear through trees may often be used to advantage. A cable guard placed as shown in *Fig. 1* will cause the cable to break rather than protect it. A wood block attached to the strand where it contacts heavy limbs will hold the cable in the clear and often prevent trouble when permission cannot be obtained to trim trees.

It must be remembered, however, that when placing aerial cable through trees, the so-called tree guards will not prove nearly as satisfactory as the provision of ample clearance.

The stub on an aerial cable terminal may appear to be an ordinary length of cable, although it should receive special consideration if trouble is to be prevented. The use of regular cable clamps for attaching the stub to the pole will provide a much better job than to use short pieces of lead sheath for this purpose. When ordinary pipe straps are used, a thin piece of lead between the cable and the clamp will provide added protection.

A present-day approved practice, used with success under certain conditions, is to provide 24- or 26-gauge cable for terminal stubs to act as a fuse between the terminal and the main cable. Our observations over a period of years have indicated that most damage from lightning and accidental contact with power lines will be localized in the stub cable when this arrangement is used.

Before adopting this method as a practice, consideration should be given to possible service interruptions and the expense involved in locating faults and replacing the stub when damaged. Satisfactory permanent repairs often cannot be made in a stub, but when damaged it must be replaced. A section of 24- or 26-gauge cable at least six feet in length is often spliced-in to connect aerial cable with underground in order to provide protection and to eliminate the need of a protected FX box. Even when lightning enters a stub cable on a single pair and discharges to the lead sheath considerable damage is usually caused on other pairs which makes replacement necessary. The use of small gauge conductors for terminal stubs does not mean that discharger blocks and ground connection may be discarded because it is always desirable to do everything possible to prevent the lightning from reaching the stub.

The substitution of rubber insulation for paper in lead-covered cables used for stubs on protected cable terminals, which are equipped with fuses and discharger blocks, will avoid a majority of stub failures due to lightning. Practically all terminal stubs will have one "U" bend and one right angle bend between the terminal and the main cable. Lightning discharge at these bends will often break down paper insulation, but it will not injure the rubber covering. An extensive survey of a large number of protected terminals equipped with rubber-insulated wire indicated relatively few cases where the lightning damaged the main cable.

A good ground connection for each protected cable terminal is important in the prevention of cable trouble. If the practice of attaching the ground wire to the strand is to be used, a wire of sufficient size should be obtained and permanent tight connections made to both the terminal and the strand. Cable terminals having exposed open wire lines connected to them require a low resistance ground connection of 15 ohms or less. The ground wire should be No. 8 B&S and be run in a straight line between the terminal and the ground rod. Lightning has a tendency to discharge at sharp bends or turns in the line, which may be considered an advantage, before it reaches the discharge blocks. The most direct path possible for a lightning discharge from the discharge blocks to the earth is most important.

When driven ground rods are used, they should be of sufficient length to reach moist earth and of proper cross-section to permit driving in firm earth. When a specified resistance cannot be obtained by driving one rod, two or more may be used and connected in multiple. There is no means of knowing the quality of a ground connection except by measuring the resistance. This test may be accomplished in the manner described previously in this series of articles.

To make certain that a ground connection is good, the correct procedure is to drive one rod and measure the resistance. If found too high, drive the second rod which, in most cases, will reduce the resistance within desired limits. When a peculiar soil condition is encountered, three or more rods may occasionally be required. A periodic inspection and test should be made of all terminal grounds to insure continued protection.

An old practice required a bond between the cable and strand and a ground connection at each tenth

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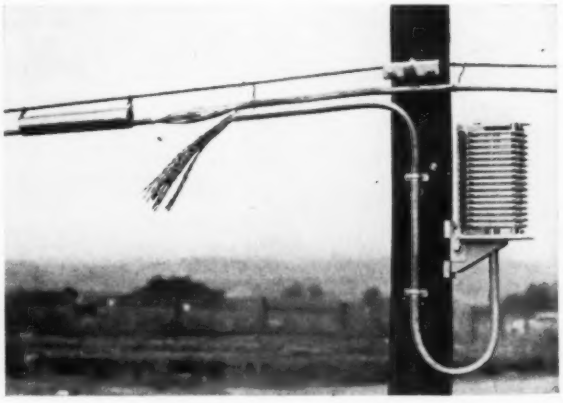

Fig. 2. Protected terminal and rubber-insulated lead sheath stub.

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FLORIDA ASSOCIATION'S "Best Ever" Convention

ONE OF THE best conventions in the history of the Florida Telephone Association was held November 7 at the New Florida Hotel at Lakeland, Fla. A full and constructive program was crowded into this one-day convention and traffic conference and approximately 200 persons participated in the banquet, entertainment and dance in the evening, a truly gala occasion.

J. S. Gillentine, president of the Inter-County Telephone Co., Ft. Myers, was elected president of the association for the ensuing year. One new vice-president was chosen, namely: Otto Wettstein, Jr., president of the Florida Telephone Co., Leesburg. Vice Presidents Carl D. Brorein and C. H. Galloway were re-elected to office. Mr. Brorein is president of the Peninsular Telephone Co., Tampa, and Mr. Galloway is president of the Winter Park (Fla.) Telephone Co.

Secretary-Treasurer C. E. Archer, re-elected to office, is treasurer of the Peninsular company, Tampa. Mrs. Josephine Poppleton, also of Tampa, is assistant secretary.

The executive committee for the year 1941-42 includes H. A. Bishop, Starke; W. E. Glisson, Tallahassee; J. S. Gillentine, Fort Myers; C. E. Archer, Tampa; C. H. Galloway, Winter Park; E. L. Cox, Perry; Carl D. Brorein, Tampa; Otto Wettstein Jr., Orlando, and A. B. Dooley, Jacksonville.

The morning was given over to registration, visiting of manufacturers' exhibits, renewing friendships and making new acquaintances.

The meeting of the officers and directors was held at a noon luncheon, with 12 out of 19 member companies represented and three special guests present.

When the afternoon session was called to order by President Otto Wettstein Jr., of Orlando, in the banquet room of the hotel, there was assembled before him one of the largest groups that ever attended a convention in the Everglade state.

After the invocation by J. D. Hurt, pastor of the First Methodist Church of Lakeland, the address of welcome was made by Horace Gibson, in the absence of Mayor George Tolson from the city. The response was made, most appropriately, by W. F. Cook, manager of the Lakeland exchange of the Peninsular Telephone Co. and host to the visiting telephone men and women.

President Otto Wettstein, Jr., of Orlando, called the meeting to order about 2 o'clock in the afternoon and presented his reports as chief executive of the association. Mr. Wettstein's report, supplemented by that of Secretary-Treasurer C. E. Archer, of Tampa, presented ample evidence of an active and flourishing telephone association.

"When it comes to problems," declared Mr. Wettstein, "I am sure we have as many in Florida as any other state in the Union. . . . In my 45 years' experience in the telephone business there never has been a time when business men in general—and telephone men in particular—had so many perplexing problems as today."

The speaker then propounded a list of 15 questions and problems affecting the telephone industry, the answers to which he facetiously said he expected to find in the address of Louis Pitcher.

Newly-elected officers, left to right: OTTO WETTSTEIN, JR., Orlando, vice president; CARL D. BROREIN, Tampa, vice president; C. E. ARCHER, Tampa, secretary-treasurer; MRS. JOSEPHINE POPPLETON, Tampa, assistant secretary; J. S. GILLENTINE, Fort Myers, president; and C. H. GALLOWAY, Winter Park, vice president. (Photograph taken by Nelson D. Stoker, St. Louis, Mo.)

Whether or not they were all answered to Mr. Wettstein's satisfaction is not known, but they no doubt stimulated the thinking of his listeners.

Among Mr. Wettstein's questions were the following: Should representatives of the employe body be given an active part in determining management policies? With the prospective scarcity of materials and equipment, should telephone companies stop extensions and modernization and restrict growth to party line development? Should telephone companies stop soliciting for new business and risk dependence upon unsolicited business to meet the increasing costs of operation and taxes?

The next number of the program was an address by Louis Pitcher, of Chicago, executive vice-president of the United States Independent Telephone Association on "The State of the Industry."

Mr. Pitcher paid high tribute to Carl D. Brorein, president of the Peninsular Telephone Corp., Tampa, for his untiring efforts and excellent administration as president of the national association in the term which closed last month.

In regard to the possible rationing of telephone service, the speaker said the national association does not believe telephone companies should solicit new business since even fair-sized inventories of materials on hand will be used in normal expansion of service. Some telephone companies are trying to induce individual line subscribers to change to two-party line service and two-party line subscribers to four-party line service, he reported.

Back row, left to right: H. A. BISHOP, Starke; J. S. GILLENTINE, Starke; JERRY W. CARTER, Tallahassee; CARL D. BROREIN, Tampa; PAUL E. BRANNEN, Ft. Myers; E. L. COX, Perry. Front row: OTTO WETTSTEIN, JR., Orlando; MRS. JOSEPHINE POPPLETON, Tampa; AL GALLOWAY, Winter Park; C. E. ARCHER, and L. J. SMITH of Tampa; W. P. WILLIS, McIntosh; CARL H. GALLOWAY, Winter Park; R. R. STUBBS, Jacksonville and OTTO WETTSTEIN, III, Ocala. All of those appearing in this photograph with the exception of Mrs. Poppleton and Messrs. Carter, Smith, and Stubbs, are directors of the Florida association.

Continued advertising in the local press was urged by Mr. Pitcher, in order to educate the public to the possible need for rationing telephone service and to build up good will. After discussing briefly the subject of priorities and allocations, the speaker informed his audience that the opinion is current in Washington that a post-war depression may be averted or at least mitigated by reason of the pent-up consumer demand, caused by the scarcity of consumer goods.

The prophecy now circulating in the nation's capital, the USITA executive reported, is an army of 5,000,000 trained and armed men by the end of 1942. After touching upon the 6 per cent telephone tax, the 10 to 15 per cent tax on employes' salaries now under consideration and provisions of the wage-hour act, Mr. Pitcher concluded his talk by urging all telephone men to become tax-conscious or they will be tax-unconscious.

C. E. Archer, general auditor of the Peninsular Telephone Co., Tampa, Fla., and secretary-treasurer of the Florida association, then presented a most timely and interesting paper entitled "New Federal Tax Discussion." The speaker considered the various taxes as imposed by the federal government, including the 6 per cent tax on bills for local exchange service and toll charges amounting to less than 25 cents; the tax of 5 per cent on miscellaneous services such as burglar alarms, fire alarms, etc.; the tax of 10 per cent for leased wire, teletypewriter and special talking circuits; and the 10 per cent tax on telegrams, cablegrams and radiograms.

After discussing the tax law, its application and interpretation, the speaker described in detail the method of billing as used by the Peninsular Telephone Co. and exhibited a new toll billing form, with special provisions for facilitating the computation of the recently-imposed federal taxes.

Obviously unaware that Cameraman Nels Stoker was still around, these gentlemen (of the same group as that to the left) are patiently waiting while H. D. FARGO, JR. (with his back to the camera), writes down their names for publication in TELEPHONY. Their focused gaze on Mr. Fargo is reminiscent of spectators at a tennis match.

In concluding, Mr. Archer said the Florida association will keep its members informed on new developments in the matter of tax interpretations and will be glad to secure rulings for member companies on questionable points.

R. R. Stubbs, of Jacksonville, Florida auditor of the Southern Bell Telephone & Telegraph Co., then spoke on the subject, "The Government and the Telephone Business." Tracing briefly the amazing progress made in the telephone industry during the past 20 years, Mr. Stubbs described in considerable detail the present situation of the industry with respect to governmental taxation and regulation. With a major portion of the country's army camps, air bases and naval stations located in the southeastern states, the speaker called attention to the fact that the government is a big customer of the telephone companies in that section of the nation.

Directing attention to improvements in the form of better wages, better working conditions, better trained workers and better management—as well as technical improvements—the speaker declared:

"The chief positive factor contributing to this development was the industry's enlightened leadership which firmly believed—as does the leadership today—that after the payment of just and adequate wages, any profits over and above those necessary to insure the safety and progress of the industry and to give a fair return on the investing public's money used

(Please turn to page 54)

Rural Telephone Trouble

THE following list covers a total of 33 common magneto telephone and line troubles and the most likely cause of each. It is fully realized that troubles other than these will be encountered from time to time and they will not in all cases be located in accordance with our suggestions. However, it is thought that these suggestions will prove helpful in the location of the average case of magneto telephone trouble on either a grounded or metallic telephone line.

Perhaps the most common cause of all telephone trouble is loose connections or high resistance joints. This trouble may be a splice in a line wire, a connection on a ground rod, or a contact in the switch hook not making properly.

Protectors, or lightning arresters as they are sometimes referred to, do prevent trouble and serious injury to equipment; but if not properly maintained they also can cause no end of trouble. Open fuses and burned carbon blocks must be replaced immediately if good telephone service is to be maintained.

The ground connection is most important on both grounded and metallic lines and should be carefully constructed. The ground rod when used for a connection should be of proper length and must be driven a proper depth into the earth. The connection between the ground wire and the rod should be both strong mechanically and good electrically. If this connection is soldered be sure to do a good job; otherwise, make use of an approved type clamp now available to attach the ground wire to the rod.

Old and rusty line wire likewise causes its share of rural telephone trouble. Compression type sleeves are now available and should be used to correct all high resistance splices. Wire rusted so as to weaken it should be replaced as this will always prove good economy. Slack wire should be pulled up so that it will not swing together in the span. Trees should be trimmed to clear the line. Broken insulators should be replaced and wire tied in place so as to pull against the insulator and not on the tie wire.

When telephones have outlived their usefulness one will save money by replacing them with a modern type. Keep cords in good condition for this will save many expensive trouble trips. Buy good dry cells and replace them when necessary in order to maintain good transmission. When the lines have been covered and these corrective measures taken, trouble will surely be reduced to a minimum. Observance of the suggestions contained in the following pages should then insure speedy and lasting repairs.

NOTICE!

The 33 magneto telephone and line troubles listed on the following pages have been carefully prepared for practical use by telephone men and it is believed they cover nearly every kind of trouble that may arise in a magneto exchange. Many telephone managers may want reprints of these pages for distribution to all their plant men and farm line companies, and TELEPHONY will hold the material in type for a few weeks to allow time for orders to be mailed in to us. If a sufficient number of telephone companies order reprints, we shall be glad to run off copies, at a reasonable cost, to take care of the demand. Please order reprints at once, if you want extra copies of these telephone troubles and suggested remedies. Write Telephony Publishing Corp., 608 S. Dearborn St., Chicago, Ill.

Summary of Magneto Telephone Troubles—Nature of Trouble on Grounded or Metallic Line Systems, the Cause, and the Probable Location of the Trouble

	Nature of Trouble	Cause and Probable Location of Trouble			
		Telephone Set	Protector	Line	Central Office
(1)	*Bell rings weakly; generator rings other bells strong. Can talk and hear O.K.*	Bell out of adjustment. Polarized magnet weak. Switch hook springs not making proper contact when receiver is on hook.		High resistance connection. Defective ground connection.	
(2)	*Bell rings weakly; generator rings other bells weakly.*	Defective connection in wiring. Bad ground connection.	Both sides partially grounded.	High resistance cross. Partial ground.	Partial ground. Both sides of line grounded in carbons.
(3)	*Bell rings well; generator rings other bells well, but throws drop weakly on switchboard when push button is used.*	Line reversed. Defective ground connection. Push button makes poor contact when operated.	Grounded.	High resistance connections.	Drop out of adjustment. Defective ground connection. Grounded in carbons.
(4)	*Bell will not ring.*	Open or short circuit in set wiring. Ringer coil burned out. Bells out of adjustment. Defective switch hook contacts. Mechanical defect in ringer.	Grounded.	Open. Short. Grounded.	Grounded on line side.

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	Nature of Trouble	Cause and Probable Location of Trouble			
		Telephone Set	Protector	Line	Central Office
(5)	*Generator rings own and other bells weakly; own bell rings O.K. when other parties call.*	Generator magnets weak. Loose connection in generator circuit. Partially short-circuited armature winding. Defective contact between armature terminal pin and contact. Poor contact in generator switch springs.			
(6)	*Bell receives a ring properly, but cannot ring its own or other bells.*	Broken connection in armature of generator. Open wire in generator circuit. Short circuit in generator armature. Generator contacts do not close.			
(7)	*Rings bells well of some instruments on line, and others weakly or not at all.*	Receiver off hook at intermediate station when no condenser is used in sets.		Partial or complete open line. Short circuit on line between bells that do ring. Ground on line.	
(8)	*Rings own bell strong; others weak or not at all.*		Both sides of line grounded.	Short circuit on line near station that cannot be called. Ground on line.	
(9)	*Bells all ring weakly when called from switchboard.*			Heavy ground on line near office.	Ringing current weak. Both sides of line grounded in main frame protectors.
(10)	*Drops of all grounded lines fall when any grounded line rings.*				Broken ground wire on office ground. High resistance ground connection.
(11)	*Several drops fall when a grounded drop is rung down by push button.*		Several arresters grounded on lines affected.		Several lines grounded in main frame protectors.
(12)	*Bells on metallic push button line all ring when switchboard is rung by push button. Switchboard does not receive ring.*	Ground spring of push button switch is bent and does not make contact while all other springs do make a proper connection.			
(13)	*Bells on line ring when push button is used to ring the operator. Rings operator whether push button is used or not.*	Springs of push button switch are all touching. Telephone connected to line reverse.	Ground in carbon at some intermediate station.	Grounded.	
(14)	*Bell taps frequently without apparent cause.*			Swinging crossed with power or other circuit carrying foreign current. Lightning.	
(15)	*Bell rings apparently without cause. Crosstalk can be heard.*			Crossed with other telephone line.	
(16)	*Can neither ring nor receive a ring, but can talk both ways.*		See No. 2 and No. 7.		
(17)	*Can neither ring others, receive ring or be heard.*		Both sides of line grounded solid.	Open, short-circuited. Line grounded.	Both sides of line grounded in main frame protectors.

XUM

Nature of Trouble	Cause and Probable Location of Trouble			
	Telephone Set	Protector	Line	Central Office
(18) *Can ring and talk with some stations on line, but cannot with others on same line.*		See No. 7.		
(19) *Can hear, but cannot be heard.*	Open battery contact in switch hook. Weak battery. Short circuited transmitter. Loose battery connection. Loose or open connection in primary winding of induction coil. Foreign particles prevent proper motion of transmitter diaphragm. Open transmitter circuit. Short circuit in induction coil.			
(20) *Cannot hear, but can be heard.*	Open in receiver cord. Short circuited in receiver. Foreign particles which prevent motion of receiver diaphragm. Short circuit in receiver cord or receiver circuit. De-polarized receiver magnet. Bent diaphragm in receiver.			
(21) *Cannot hear or be heard.*	Open secondary winding in induction coil. Broken connection in secondary circuit, probably in receiver cord or receiver wiring. Open contact in switch hook.	Grounded. Open.	Open. Short circuited.	
(22) *Crosstalk between lines.*		Grounded in carbons on both lines. Line not properly transposed.		Defective ground connection. Two or more listening keys open at one time.
(23) *Crosstalk between grounded and metallic lines.*	If push button ring is used on metallic line there may be a ground on metallic line affected.			Use of split pairs or low insulation in cable.
(24) *Cannot hear or be heard, but can ring and receive ring.*	Defective contacts in circuit. Switch hook contacts not making properly. Open in receiver, cord, or induction coil.	Both sides of line partially grounded.	High resistance short.	
(25) *Sputtering sound in receiver.*	High battery voltage. Loose connection in battery circuit.	Grounded in carbons.	Grounded.	Grounded in main frame protector.
(26) *Dry cells run down quickly.*	Upper contact of switch hook making contact when receiver is on hook. Receiver kept off hook too much. Short circuit in wiring or bushings of switch hook.			
(27) *Cuts out at times both in receiver and transmitter.*	Broken conductor or short in receiver cord. Loose connection in induction coil or receiver circuit.		Loose connection. Swinging ground. Swinging short.	
(28) *Cannot raise operator with push button, but can call parties on same line.*	Push button does not make contact when depressed. Loose or broken contact on push button switch. Broken ground connection.			Open drop. Loose connection.

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Nature of Trouble	Cause and Probable Location of Trouble: Telephone Set	Protector	Line	Central Office
(29) *Drop does not fall when rung, but generator rings own bell.*				Drop coil open. Pivot screws tight or binding. Shutter bent.
(30) *Night alarm bell does not ring when drop falls.*				Weak batteries on night bell. Night alarm contact in drop does not make. Loose connection or open in night alarm circuit.
(31) *Night alarm continues to ring after drop is restored.*				Night alarm contact is bent so that contact is not broken when drop is restored.
(32) *Can talk to parties on line, but cannot talk properly with operator.*			Partial short or open between switchboard and first station on party line.	Line jack worn so that plug does not make proper contact. Defective cord on switchboard. Loose connection in operator's headset, key operator's jack or plug.
(33) *Operator cannot ring parties at far end of line.*		Grounded carbons in stations near end of line.	Too many stations on line. Short between stations that cannot be called and switchboard.	Weak generator or ringing current. Loose connections on ringing key of cord.

FLYING CABLE REPAIRMAN

B. M. Fobes, general cableman in Wisconsin, has been in such demand around the state during the past year that he found it necessary to secure a faster means of transportation than that provided by his automobile. So now he has his own plane and has earned a pilot's license.

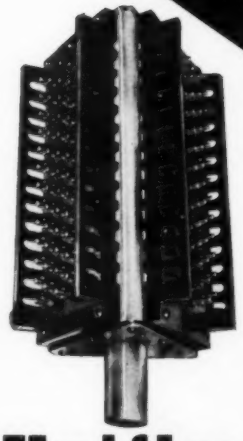
Encountering a serious case of cable trouble last month, Manager W. E. Lawton of the Viroqua (Wis.) Telephone Co. called for Mr. Fobes—or "Manta," as he is better known—at his home in Sussex. He was told that he could be located in Pittsville.

At Pittsville Mr. Lawton learned that "Manta" was at the airport in Wausau, and there he finally located the much-sought-after cable trouble-shooter. Upon being told of the trouble encountered at Viroqua, Cableman Fobes said he would be there in an hour and a half.

Sure enough "Manta" arrived on schedule, cleared the trouble and was back in Wausau in the evening. (The distance from Wausau to Viroqua as the crow flies—or "Manta"—is 120 miles and that from Viroqua to Pittsville, 75 miles.

Hereafter the cable jobs of this expert trouble-shooter will be only an hour or two distant by plane. All that is necessary in summoning him is to tell him where he can land his plane.

The accompanying photograph shows Mr. Fobes (center) bidding goodbye to Manager Lawton (right) as he is ready to take off.



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CABLE TERMINAL

Built up of standard units to produce completely flexible unprotected cable terminals for pole mounting in wood or metal pole houses or for pedestal mounting in underground or parkway cable distribution systems. Units can be quickly added together to furnish cable termination of almost any size, arrangement and dimension. Triangular design of heavy galvanized steel cable chamber makes for adequate interior space for cable forming and connecting. Bakelite face plates, fitted with non-corrosive studs, are clamped and gasket sealed on one or more sides of chamber when required for 52 pairs in pole, wall or cabinet mounting. Can take three plates of 78 pairs for pedestal mounting. Face plates have one piece moulded fanning strips with white numbering strips for identification markings. Bottom plate accommodates two or more self-soldering nozzles. Each unit only 12½" high.

INGENIOUS DESIGN

WHEN COOK engineers approach a task in design they do so with a full knowledge of the ultimate service and installation requirements. It was this knowledge of service requirements that resulted in the ingeniously designed triangular cable chamber of the new Uniflex Cable Terminal—a feature which reduces the size of the Uniflex to approximately half of that of the ordinary cable terminal, binding post chamber or pot head and provides space for as many as 78 pairs of terminals per single Uniflex unit. Uniflex offers scores of new features in flexibility, working convenience and economy. Get full information at once. Uniflex Terminals are sold by all telephone equipment manufacturers and supply houses.

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He an attractive, low cost service which telephone compan profitably promote among owners of small stores. It is espe designed for the small business which has outgrown one cen fice line, and doesn't wish to add personnel — yet finds nee a second and perhaps a third line to serve its custome perly.

"T ne" Monophones are ideal for this purpose because:

1. avoid the use of a separate telephone for each line.
2. permit holding a connection on one line, while answering on a second line.
3. prevent loss of business due to "don't answer" or "busy" rs.
4. make for neatness—do not require separate key boxes.
5. are flexible in application—meet a wide variety of local and conditions.

"T ne" Monophones are handsome, sturdy instruments. Their mo plastic sub-bases are equipped with one, two or three lev e keys, as desired. They can be furnished for either manual a omatic operation. Write for prices and catalog 4055-C promptly upon request.

ONE-KEY MONOPHONE

Equipped with one key to switch from one line to a second, with holding bridge for line No. 2 (Cat. AA-24-Aut.—recommended where one line is private). Also furnished without holding feature (Cat. AA-26-Aut.).

TWO-KEY MONOPHONE

Equipped with two keys: one a "line" key to select line No. 1 or No. 2; the other a "hold" key to hold the connection on whichever line is not being used for conversation (Cat. AA-44-Aut.).

THREE-KEY MONOPHONE

Equipped with three keys: one to switch from one line to the other; the other two keys to "hold" lines No. 1 and No. 2, respectively (Cat. AA-23-Man.).

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DRY CELL BATTERIES

For Telephone Use

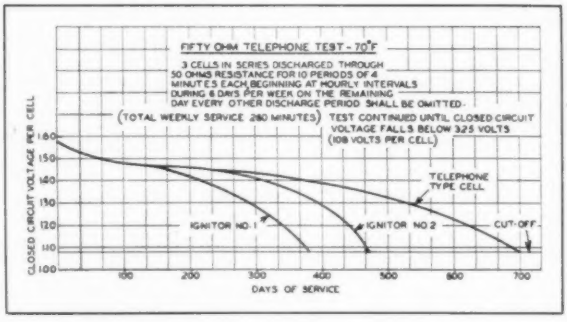
By RAY BLAIN
Technical Editor

MANY PERSONS are of the opinion that local battery telephone service must be associated with the "horse and buggy days" and that good transmission cannot be had with this type of service. Such an opinion is not justified because local battery service is efficient when proper equipment is selected, properly installed and maintained. While magneto service may not be as modern and rapid as common battery telephone service, good service can be furnished with local battery equipment.

The most important problem in the maintenance of local battery telephone station equipment is the selection of a properly-designed dry cell battery for use in the subscribers' telephones. These dry cells should be designed to provide a uniform quality of transmission during their service life. When and how to replace these dry cells, so as to maintain uniform transmission, is also worthy of careful consideration. In this article, an attempt will be made to furnish the latest available information on this important subject in the hope that it will prove useful to telephone men in their daily work.

While it is true that perhaps the selection and use of dry cells is the most important factor in the furnishing of good local battery service, the line or station equipment must not be neglected if reliable service is to be expected. Ground connections should be properly made, lines maintained clear of trees to prevent leakage during wet weather, splices in line wire should be made in such a manner as not to introduce excessive resistance into the circuit and materially reduce the small currents flow to affect transmission. Splices in rusty line wire should be avoided in all cases. When these precautions are observed and dry cell batteries are carefully selected and maintained, good local battery telephone service is assured and subscribers will pay their bills willingly and promptly.

The present-day local battery transmitter operates normally on two dry cells with a voltage range of three volts down to the cut-off point. The battery voltage, the resistance of the supply circuit, together



This chart gives a comparative test of three types of dry cells.

with the transmitters' own resistance, determines the strength of the current. Damage may be caused to a transmitter by electrical packing due to the coherer action among the carbon granules when exposed to a voltage and current above normal. Sparking, which may occur when breaking a circuit carrying excess current in the telephone itself, may also cause the granules of a transmitter to cohere. A dry cell which will provide a sustained voltage over its useful life proves most desirable for telephone use in that it will insure uniform transmission.

Procure Batteries from Supplier

We are frequently asked the question as to whether the ignition type of dry cell commonly used on gas engines, and which may be purchased from any corner hardware store, is suitable for telephone use. *The answer is definitely "No,"* as we shall attempt to explain later in this article. *Dry cells for telephone use should always be procured through your telephone supply house.*

Before the turn of the century when dry cell batteries first came into general use, the only type available was a universal cell designed for all general purposes, such as ignition, doorbell operation, and power for a telephone transmitter. About 40 years ago, after a long period of intensive scientific investi-

Money Talks ALL DOWN THE LINE!

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Do you know *why* the new Western Union *Rubber* Insulators are cutting down breakage costs so successfully? And eliminating a lot of reinstallation expense, as well! It's the best news on the wires today—and we can say so frankly because these

WESTERN UNION *Rubber* INSULATORS

were designed and proved by Western Union under "tough" conditions of coastal fog and humidity. Continental collaborated in their creation by developing the precisely right rubber compound for insulator service. It's too big a story to tell in any one advertisement, so we've issued a special folder-bulletin that will give you the *facts*. Just write for it now.

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"Black Beauty" Poles are thoroughly treated with creosote to safeguard them from the assaults of termites and other wood-boring insects.

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gation in one of the world's largest dry cell laboratories, engineers learned that greater efficiency could be obtained if dry cells were specially designed to perform certain jobs.

When a gas engine is started, the battery must deliver a large current initially and continue to supply a large current for long periods of time. Constant voltage may not be extremely important for this service although a heavy duty high-amperage battery is necessary for best results.

In the powering of a local battery telephone, the opposite is true for the initial current surges are small and the average current consumption is low for comparatively short periods of time. To best meet this condition or requirement, a light duty, low-amperage battery is necessary. This type of battery will release its stored-up energy in small quantities and yet sustain its accurate voltage over months or even years of telephone service to provide a uniform grade of transmission. Dry cells designed for gas engine ignition or telephone service may appear identical from all external appearances, except perhaps the label, but their internal construction is entirely different.

Comparative Test of Dry Cells

Not only are specific types of dry cell batteries better for telephone use, but they are also cheaper. In this connection, we refer to the accompanying chart which indicates a comparative test of three types of cells. It will be noted that two types of Ignitor cells are compared with a special telephone type of cell. Ignitor No. 1, it will be noted, reaches a cut-off voltage of 1.8 after 370 days of service. Ignitor No. 2, which is a better grade of cell, gave 466 days' service, but the telephone type cell gave uniform service and transmission over a period of 700 days, before the cut-off voltage was reached.

Ignitor No. 1 lists at about 30 cents each, and the telephone type 40 cents each. Ignitor No. 2 lists at about 40 cents each and is about 50 per cent less efficient than the telephone type for telephone use, but costs about five cents more. This chart, it is believed, indicates clearly that the telephone type cell will prove the better investment for all telephone purposes.

One of the most painful headaches in the telephone business is the constant complaints of regular subscribers with reference to the poor quality of transmission from switcher stations. Naturally, we are not going to claim that the use of the correct type of dry cell installed in these switcher stations will eliminate all trouble because, as previously stated, lines and equipment must also be properly maintained if good transmission is to be expected. It is firmly believed, however, that the selection of the proper type of dry cell and its prompt replacement when the cut-off voltage is reached will materially reduce the poor transmission complaints from all switcher stations to a minimum.

When and how to replace telephone dry cells should receive careful consideration by any telephone company. Some companies have adopted the practice of visiting all stations and replacing dry cells once each year. This method will not prove economical if the special telephone type of cell is used, as its average life will approximate 18 months or longer, depending on the manner in which they are used. In the interest of economy, we urgently recommend that in all cases, dry cells be tested and proved defective before being replaced.

Good Testing Equipment is Important

Dry cells of the telephone type should never be tested with the cheaper variety of pocket ammeter as the readings obtained with this instrument will prove of no value in determining their suitability for further telephone service. A closed circuit voltage reading per cell should be taken and the cell discarded only when it reaches .93 volts. This reading should be taken with a tester which consists of an ordinary $1\frac{1}{2}$-volt voltmeter shunted by a resistance of 6 2/3 ohms.

When an instrument of this type is not available, a most reliable test may be made by connecting a milliammeter in series with the battery in the telephone and then watching the fluctuation of this needle as you talk into the transmitter. By carefully observing the action of the needle, you will soon learn how it should perform when a suitable grade of transmission is being produced. When a proper action is not obtained, a new set of dry cells may be installed, and if this does not produce the desired results you will then know that the trouble is in the telephone itself and not in the battery supply.

We hope the reader will clearly understand that it is not contended the selection of a special telephone type of dry cells will correct all of your local battery troubles. We do claim, however, that this type of cell is not only lower in cost than the ordinary general purpose variety but will give longer and better service without the slightest danger of injury to equipment. The ignition type of dry cell will cost more and, in most cases, will shorten the life of expensive telephone equipment. With these thoughts in mind, it is believed that telephone men will readily understand the numerous advantages to be gained by the adoption of a dry cell battery specially designed for telephone use.

▼ ▼

Cooperative Rural Telephone System Considered

A cooperative rural telephone system for the farmers around Vale and Owyhee, Ore., is being considered according to a news dispatch telling of a county-wide meeting, October 1, to discuss the matter. The movement has been under way for some time and is being sponsored by the Oregon Trail Grange at Nyssa, Ore.

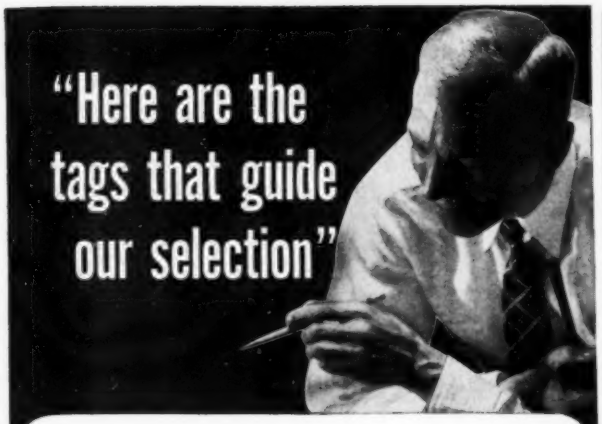
It is estimated that construction charges will average $50 a member and this amount may be borrowed from the Farm Security Administration by its clients of whom there are about 700 in Malheur county. A tentative agreement with the Malheur Home Telephone Co. has been reached, whereby the cooperative will be served at the rate of 50 cents a member a month. There will be a slight upkeep cost for the cooperative's line, probably averaging about 10 cents a month, sponsors say. This will give rural patrons telephone service on a par with that in neighboring towns, at an estimated cost of 60 cents a month.

▼ ▼

REA Program Proceeds Despite Copper Shortage

Rural electrification projects consuming large quantities of copper are proceeding as yet unhampered by the federal restrictions against use of the metal. Trade journals devoted to the construction industry still list the award of contracts by the REA, apparently in undiminished volume, for projects carrying power into the farm areas.

XUM



. . . you can depend on these wires under all conditions

Amertel Telephone Wires and Amerstrand Steel Strand are made to withstand the shock of the most severe conditions. Rigid tests throughout manufacturing stages insure efficiency and toughness. A specially selected steel is used in the making of these wires—adequate corrosion-resisting features are actually built into them from the beginning.

These wires are evenly and heavily coated with the highest grade zinc obtainable—applied by the "hot dip" process, which assures a uniform chemical bonding of the zinc and steel. The complete, controlled union of the two metals prevents flaking of the galvanized coat and eliminates the possibility of a weak point of contact.

Amertel is available in the high tensile grades—85 and 135—as well as in the regular grades "EBB," "BB" and "Steel". Amerstrand is available in all standard grades and sizes. Write for complete technical information.

LOOK FOR THESE TAGS. *They are placed for your protection on every coil of Amertel Telephone and Telegraph Wire and Amerstrand Steel Strand.*

AMERICAN STEEL & WIRE COMPANY

Cleveland, Chicago and New York

Columbia Steel Company, San Francisco, *Pacific Coast Distributors*
United States Steel Export Company, New York

UNITED STATES STEEL

MAINTENANCE
with COFFING Tools

is the safest and most economical way. More than 86% of all the telephone companies in the United States, who are using Coffing tools, appreciate this fact.

SAFETY-PULL HOIST

Coffing's "Safety-Pull" Ratchet Lever Hoist is indispensable for pulling overhead guys, changing insulators, stringing underground cables, etc.

Capacities ¾ to 15 tons; weighing from 14 to 150 lbs.

TEMPORARY GUY CLAMP

Coffing Guy Clamps are built on the vise principle, with vise screw enclosed in a steel magazine. They have a very powerful grip, are easy to handle. An automatic grip placed on one end permits necking as close to the pole as desired without slipping. Weight 3½ lbs.

COFFING LOAD BINDERS

For booming poles, logs, pipes, etc., the Coffing Load Binder is the safest and most powerful boomer on the market today. The Model A weighs only 11½ lbs., and will boom a load of 4,000 lbs. The Model F boomer weighs 24 lbs., and will boom a load of 6,000 lbs.

POWER PIKE POLE

This item is entirely new in the Coffing line of utility tools. It is built of two pieces of galvanized pipe which telescope. Power is obtained from a "Safety-Pull" Hoist, or a Coffing Load Binder. Used for straightening leaning poles, one man can do the work of 6 men.

Minimum height, 8'-2"; maximum 11'-7". Weighs only 32 lbs.

TEMPORARY CROSS ARMS

Coffing Temporary Cross Arms are built to stand hard usage. They weigh much less than a standard cross arm, and no line truck should be without at least one set. They will pay for themselves many times a year through emergency and general use.

Write for New Catalog GT 5

COFFING HOIST CO.

DANVILLE - ILLINOIS

Winter-Condition Your Rural Lines

By Ray Blain

(Concluded from page 19)

Vines like this should be removed from the line.

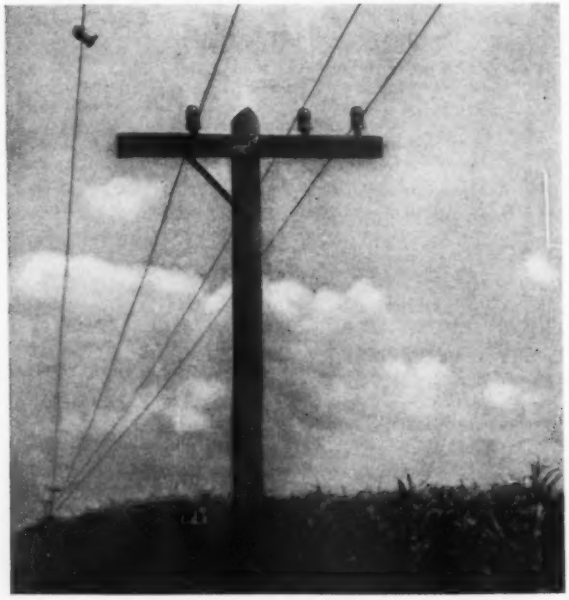
Special clamps and drive hooks may be used to attach the drop wire to the house and pole. These clamps prove more desirable than the usual tie on a knob or insulator, are easy to install and their cost is quite reasonable.

Solderless connectors may be used to advantage for attaching the drop wire to the line wire. These connectors cost very little, are quickly and easily installed and when used correctly will give good service indefinitely. When an attempt is made to solder the drop wire to the line wire, the galvanizing is generally damaged so that it will rust, weaken and eventually cause trouble.

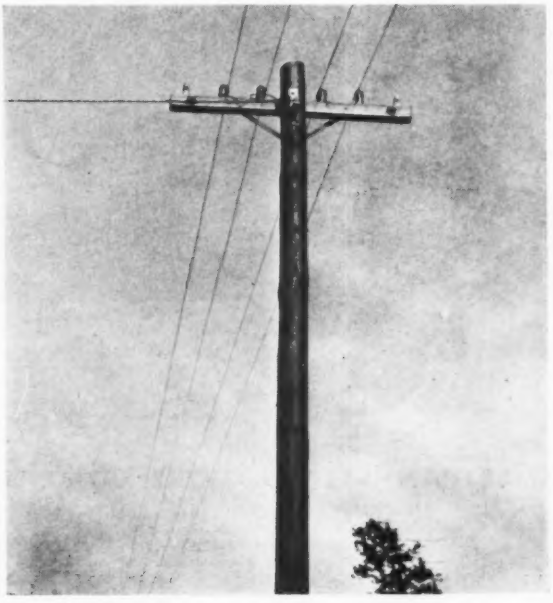
It is necessary that trees, vines and brush be trimmed to protect the line from serious leakage and transmission loss otherwise certain to be encountered in wet weather. Green foliage will likewise cause serious leakage in summer. When permission cannot be obtained to trim trees, it is a good plan to reroute the line if possible in order to clear them. The expense of this move is justified when consideration is given to the necessity of maintaining the line in a serviceable condition at all times.

In these days of rural electrification it is also most necessary to obtain adequate separation between the telephone and power circuits. Power parallels are not desirable although they can seldom be avoided on present day rural lines. When telephone lines must be run in the vicinity of power lines, proper protection to insure the safety of persons and property should be provided. Your telephone supply house will be glad to give you good and accurate information on the use of modern protector equipment designed to meet this important need.

When one section of line has been overhauled in the manner described you are then ready to move on to the next section. This action may be repeated until the end of the line is reached. If this system is given a fair trial, we feel sure that it will prove a real economy and that the telephone service will be materially improved.



A good line but a neglected floater.



A good drop wire installation on a rural line.

Selected by 86% of the Operating Companies

COFFING
Safety Pull
HOISTS

It's little wonder that the big majority of operating companies select Coffing Safety Pull ratchet lever hoists, because they are the safest built—the only ones equipped with a dual ratchet and pawl assembly independent of each other.

The handle is always under control—it cannot slip or drop low.

Then, too, Coffing Hoists are the lightest on the market. While capacities range from ¾ to 15 tons, the units weigh only from 14 to 150 pounds.

Write for illustrated literature.

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REALIZING that all TELEPHONY subscribers are interested in preserving for future reference their telephone engineering data sheets we have made available binders at a very low cost, 40¢ each. If you have failed to order yours do so at once and have available at all times this valuable information.

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DRIERITE

The Modern DESICCANT FOR DRYING CABLE SPLICES

DRIERITE dries the Cable Splice by positive absorption of all moisture from wires, insulation, bandage and surfaces inside the sleeve. Application is easy and rapid.

The snow-white granular **DESICCANT** is neither poisonous, corrosive nor abrasive, and does not evolve gas, fume or odor either in storage or in use. It eliminates all chance of fire, accident or discomfort to workmen or occupants of buildings.

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1 Quart Can (800 grams) 12 per Carton.

For sale by the Manufacturer and leading telephone supply houses.

W. A. HAMMOND DRIERITE COMPANY
YELLOW SPRINGS, OHIO

HOLIDAYS ARE SPECIAL DAYS FOR

The Average Person

By MAYME WORKMAN
Traffic Supervisor,
The Illinois Telephone Association

PEOPLE IN ALL walks of life look forward to holidays—special days when, generally speaking, men and women are relieved from their daily tasks to enable them to enjoy the pleasures and festivities of the occasion. Children, too, look forward to holidays with keen anticipation for to children the world over a holiday means "no school for the day" permitting happy hours of play.

Telephone companies recognize state and national holidays and, while it is not possible to relieve all of their employes from duty on these occasions, schedules are arranged so that every employe will be free to enjoy at least one or more of the special days set aside for celebration and commemoration.

Telephone companies also give special consideration to their customers' needs on holidays. Long distance rates are reduced on the specific days when family members congregate to celebrate the occasion. Recognizing that it is not always possible for all members of a family to get together on holidays—because of the distance that intervenes, urgent duties which prohibit one from leaving, etc.—reduced rates apply on the holidays which are especially significant to families, that is, Christmas, New Year's Day, Thanksgiving, and Mothers' Day.

On Christmas, for example, when all the members of your family are gathered together and *you* are many miles away, unable to join the family circle, a long distance call—hearing the voices of those you love—will soften the pang of regret in not being able to be there in person. It will create a feeling that, although you are many miles away, you have not been excluded from the family circle and the joys of the festive occasion.

Labor Day, the first Monday in September, set aside to honor and pay tribute to the working men and women of our nation, is also observed as a holiday in the telephone industry. However, long distance rates have not been reduced on this day; probably because it has no special significance that would create a desire to use long distance service. This is also true of Independence Day, Washington's birthday and Memorial Day.

Handling holiday traffic subject to reduced rates is a big assignment for telephone companies and their thousands of telephone employes throughout the nation. In the large toll center areas, almost as soon as a holiday is ended, plans for handling traffic on the succeeding holiday are begun.

Christmas traffic is usually the heaviest and by far the most complex of all holiday traffic. Christmas greetings via long distance are sent to every nook and corner of the country. Lines normally carrying small volumes of traffic frequently have to be used to full capacity, the number of switches per call generally are greater, more route information is necessary, and many special types of treatment are required.

Small and medium-sized exchanges do not require a year's advance preparation in order to handle holiday traffic satisfactorily. However, such planning as *is* necessary should be done far enough in advance to assure that all calls will go through with the least possible delay. Special attention should be given to inward service in order to cooperate with other exchanges that may be carrying a heavier traffic load. Reports should be passed promptly, at the prescribed interval. Close attention should be given to supervisory and other signals and every effort should be made to avoid any unnecessary use of toll circuits.

All-out aid should be given to the large toll centers that carry the major portion of the traffic load in order that his call, her call, and our call may be completed with the least possible delay.

Questions From Illinois Operators

1. Why isn't Labor Day considered a holiday as to rates by the telephone company? What days are considered holidays?
2. Is it very important to put all information on your tickets?
3. How long should a tributary hold the calling party on the line after the ticket has been passed to the toll center?
4. Why is it necessary to clear a built-up circuit?
5. In securing Information, why is it necessary to repeat the name of the called place?

The answers to these traffic questions are published on page 52.

XUM

Approved Maintenance Practices

(Continued from page 24)

pole. Many of the larger companies have since discontinued the grounding practice with satisfactory results, although bonding at regular intervals is still considered standard practice. These bonds are generally made by using a length of copper ribbon or stranded wire soldered to the cable sheath and clamped to the messenger strand.

Aerial cable, when supported by rings or other metal hangers, will have numerous high resistance contacts between the lead sheath and rings due to corrosive action. The purpose of bonding the strand and sheath is to short-circuit these high resistance contacts and prevent damage to the cable by the passage of current when wires carrying high voltage come into accidental contact with the strand. When adequate bonding is neglected, holes are often burned in the sheath at many points where the rings contact the cable.

Merely grounding aerial cable will not prevent sheath burns and good bonds are always necessary. The installation of a bond at each tenth pole on a 140-foot span is ordinarily considered adequate. Depending on grade clamps to provide a bond between the cable and messenger strand will not prove successful in all cases because these clamps often do not provide a low resistance connection.

The practice of placing a lead sleeve on the strand in the position as shown in *Fig. 2* and pulling new aerial cable through it will eliminate a seam in the sleeve. This will save labor costs and make a far better job than the use of the split sleeve which frequently causes trouble. Numerous small features of this nature may be used to advantage to reduce the possibilities of future trouble in the cable plant and will permit real preventive maintenance.

▼ ▼

Building Undergoes Remodeling

The Mason City Telephone & Telegraph Co. is engaged in remodeling the building which it acquired recently in Mason City, Ill., for an exchange and headquarters building. The operating room and business office will occupy the first floor.

WHEN IT COMES TO **POLES**
BOTH SIDES COME TO GraybaR

In the choice of wooden poles, GRAYBAR has recognized that differing conditions lead to different preferences. For *both* cedar and pine poles, however, leading utility and telephone companies have chosen GRAYBAR as an exclusive source of supply. When they order "via GRAYBAR", they get a double assurance of good value: (1) Top-quality lines of leading suppliers, (2) backed by the extra satisfaction insurance of the GRAYBAR tag.

IC 41
INTERNATIONAL CREOSOTED PINE POLES
These straight, trim poles of Southern pine, treated by a special creosoting process of the International Creosoting & Construction Company, have established outstanding service records for strength, long life. Surface cleanliness permits city use.
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NATIONAL CEDAR POLES
Butt-treated and full length treated by the exclusive "Permex" Method of the National Pole & Treating Company, these Western Red and Northern White Cedar Poles offer maximum life in service. All physical measurements and quality factors meet the most rigid requirements.
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QUALITY
SINCE 1869
RELATED WOOD POLE-LINE ITEMS
GRAYBAR also offers RAINIER Douglas Fir and Creosoted Pine Crossarms, Insulator Pins, Insulator Brackets and Crossarm Brackets. Taken together with the complete Hubbard line of Pole Line Hardware, this means you can meet all your pole-line preferences exactly when you call on . . .
GraybaR ELECTRIC COMPANY
Executive Offices:
GRAYBAR BUILDING
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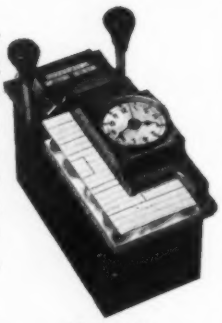
Offices In Over 80
Principal Cities

Confidence In The *Specialist* Is Universal

In medicine and in law you go to a specialist when you want to be sure, because you know that the man who spends his life work on *one* thing can do *that* thing better than the man who generalizes.



Model 33

The same thing is true of manufacturers.

For 49 years we have designed and manufactured only instruments for accurate timing. Although we have often been tempted to turn to other lines, we have stuck steadfastly to our specialized line.

Isn't it natural that this concentration should result in producing better, more reliable, more durable toll timing instruments?

Model No. 6

There are three models of the Calculagraph that gives an immediate, permanent and accurate record of every toll message. Write for information.

THE CALCULAGRAPH COMPANY
310 Sussex St. Harrison, N. J.

CALCULAGRAPH
Accurate Toll Timing to the Second!

New Allocations Program Will Curtail Materials

(Continued from page 22)

is where the fun starts. The OPM Priorities Division has the responsibility for doling out the allocated materials "according to plan," *but in response to applications (and resulting certificates) placed with the OPM Priorities Division* by individual companies within the same industry. So far, all that is known about the "distribution formula" is that it will probably be made on the basis of past performance of individual companies.

* * *

The cynical observer is likely to get up at this point and walk off, saying "Pardon, but this is where I came in!" It might look in a way as if, after all the trouble of rigging up the Industry Allocation Program, the actual disposition of priorities is right back where it started—in the lap of our old friend (or enemy, as you see it), the OPM Priorities Division.

But, practically, something definite will be accomplished under the Allocations Program. It should mean *assurance of actual delivery of materials* to the extent that the industry as a whole is entitled to such materials under its program. In other words, OPM will function as a sort of gigantic treasury or reservoir of all materials. And the different industrial allocations programs will represent "checking accounts," showing the extent to which each industry is entitled to draw on the central supply.

This means that unless there has been some mismanagement or monkey business in the OPM accounting office, a sufficient supply should be present to honor each allocation "check" when placed by the different industries. This modest assurance should be an improvement on the rapidly deteriorating preference rating practice of today—whereby yesterday's valued A-10 becomes doubtful today and virtually worthless tomorrow.

* * *

But it should be perfectly obvious, even to the casual follower of priority matters, after glancing over the foregoing eight steps, that the real trouble is going to start with the last step—the enforcement and compliance phase. Assuming that an industry has reasonable assurance that supplies will be available to meet its program allocation as a whole; what system is going to be worked out for dispensing the priorities *between the different companies?*

The timing element will have to be considered. Clearly the OPM Priorities Division cannot ladle out a given industry's allocation like hot soup at a mission house on the basis of first come, first served. Nor is that glittering generality, "basis of past performance," very much of an assurance that all companies within the same industry will be able to participate without friction.

Large industrial organizations, such as the Bell

Telephone System, are probably in a position to make a clear demonstration of their various needs under different circumstances on the "basis of past performance." But small Independent companies, which have never had to check too closely on the *continuity* of their flow of supplies or worry overmuch about whether items were used for maintenance or new plant, may find themselves at a disadvantage.

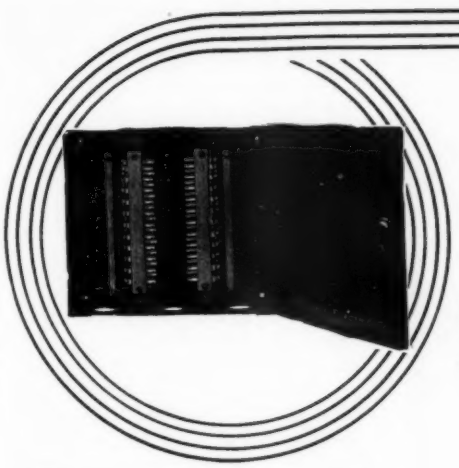
On the other hand, there will have to be devised some system for keeping the flow of material orders on a fairly even basis to enable the manufacturers to keep up an efficient production organization. If the orders are held up, or allowed to freeze and thaw into accumulated floods, lumps and snags, there will be serious difficulty at the manufacturing end. Some manufacturers may quit the field altogether and turn their apparatus to more continuous products. Then when the OPM certificates begin to flow for utility supply units there may not be remaining productive capacity to fill the orders.

Finally, the new SPAB allocations program makes no provision about a gigantic new problem which is certainly sure to arise—the problem of secondary rationing. Secondary rationing means the distribution of finished products—or in the case of utilities, the distribution of such service as is available.

Will the OPM take charge of this? Obviously some government agency has to take the responsibility of determining which of two or three prospective new subscribers will be given telephone service if, as a result of priority restrictions, the telephone company has only enough materials to fill the demand of one. OPM has already assumed that responsibility in the analogous case of the electric power shortage in the southeastern states.

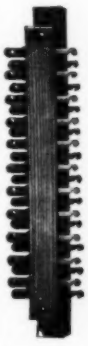
But it is a broad responsibility, extending far beyond the field of utility service. Production in all civilian lines is being cut down and will be cut further. There are rumors that within the year the average citizen will not be able to buy a new automobile even if he could obtain the delivery of one—without showing that he has a special need for it (such as a doctor or a remote farmer). Likewise, in the case of electric refrigerators there are reports that within the next year a prospective new customer must show that his old refrigerator has worn out and is beyond repair and that he really needs a new one.

There is little danger that we will get to the desperate situation pre-



Reliable

BUILDING TERMINAL BOXES



TERMINAL STRIPS

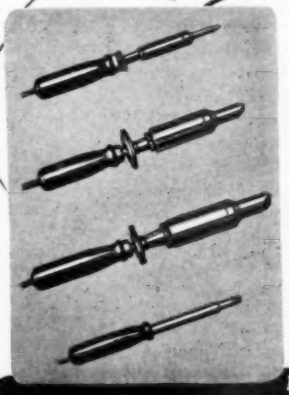
Type E strip at left has screw binding posts with soldering terminals imbedded in hard maple, mounted on a maple back strip. 11 to 52 pair.

Type L at right has twin screw binding posts with one soldering washer mounted on bakelite with a maple back strip. 5½ to 26 pair.

Type E box, as shown, is equipped with type E terminal strips. Numerous knockouts are provided at top and bottom. Plenty of room for cabling and running of jumper wires. Finished in black enamel.

Reliable ELECTRIC COMPANY
OVER 30 YEARS SERVICE TO THE UTILITIES
3145 CARROLL AVENUE · CHICAGO ILLINOIS

"LEADING THE PARADE"—
AMERICAN BEAUTY
SOLDERING IRONS



It's easy to pick the points that put American Beauty irons in front. They're light-weight, quick-heating, practically indestructible and beautifully balanced. Elements are superior — copper tips are easy to replace. It pays to use American Beauty — start now!

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AUTOMATIC ELECTRIC
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1033 WEST VAN BUREN STREET · CHICAGO, ILLINOIS
BRANCH WAREHOUSES AT DALLAS, KANSAS CITY, LOS ANGELES, RICHMOND (VA.) AND SAN FRANCISCO

QUIT STABBING POLES
● Use the new Multipoint Cant Hook. Its 6 points, ¼ in. x ½ in. in size, hold better than a single long point. Leave no deep stab holes where water collects and rot starts—do not damage the creosote treatment. The Multipoint Cant Hook grips more securely even the smallest diameter poles which are so difficult to handle with the standard single point hook—spreads strain over wider area—is self-releasing. Furnished in 3 sizes for handling poles up to 22 inches in diameter. Multipoint speeds up pole handling in the yard—eliminates damage—saves time and money. Made by the American Fork & Hoe Company, Cleveland, Ohio.
STURDETOOLS
a TRUE TEMPER PRODUCT
STURDETOOLS
MULTIPOINT CANT HOOK
6 points ¼"x½" in size grip the pole securely but leave no deep hole to encourage rot and decay.
Furnished in small, medium and large sizes for handling poles up to 22" in diameter. Prices and complete description on request.
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vailing in Germany where a man has to bring his old tattered coat before a government official to prove that it is useless before he can get a ration card to get a new one. But it is certain that in a number of lines of civilian consumption (especially those involving use of quantities of metal) *consumer rationing* is going to be a necessity. These are just some of the headaches which remain to be solved in the months to come.

▼ ▼

Mayor to Return to Job as Commercial Man

Not many men are elected mayor of a city of 50,000 population, and then find it impossible to relinquish the position before this term expires. Yet that has been the experience of Leon F. Roberts, commercial superintendent of the Jamestown (N. Y.) Telephone Corp. However, Mr. Roberts plans to retire as mayor of Jamestown when his term is up in December.

After 16 years of newspaper work, he was appointed a member of the city council, in 1931, to fill a vacancy and was elected for a two-year term in the succeeding fall. In 1933 he was elected mayor of Jamestown and, at 34, was the youngest mayor of any city in New York state. After a lapse of six years he was again elected by the largest majority ever given a candidate in the history of the city.

In December, 1940, he submitted his resignation as mayor in order to devote

LEON F. ROBERTS

all his time to telephone work but, as the council was deadlocked over his successor, he withdrew his resignation and, with the consent of the Jamestown Telephone Corp., divided his time between the two jobs.

When his term expires in December, Mr. Roberts plans to retire from politics and concentrate on his telephone work in which he has been remarkably successful. His column, "Good Evening; Telephone Company Speaking" which runs in the Jamestown paper, has been very effective in building public relations in Jamestown.

Magazine Publicizes British Columbia

A recent issue of "Telephone Talk," employes' magazine of the British Columbia Telephone Co., describes a pictorial visit to British Columbia's upper Vancouver Island district. The accompanying photograph, taken by Gus. A. Maves, shows a beautiful view of Cruickshank Canyon in Forbidden Plateau, near Courtenay, B. C. Almost indistinguishable are the two horseback riders on the mountain, surveying the striking scene.

In a series of ten-page pictorial supplements, the first of these having appeared last summer, "Telephone Talk" has publicized the scenery and industries of British Columbia.

Cruickshank Canyon, Forbidden Plateau, near Courtenay, B. C.

OPA Planning a Price Ceiling For Wire and Cable

Work is being speeded by the Office of Price Administration on preparation of a price schedule establishing ceiling prices on copper wire and cable, Leon Henderson, administrator, stated on November 14. (This was forecast by Francis X. Welch in TELEPHONY of November 1, page 24.)

A meeting with a group of representatives from more than 30 companies in the industry was held in Washington, D. C., on Thursday, November 13, and in addition individual conferences have been held with a long list of companies in order to gather information on price movements and related data. As a result of these meetings a large amount of detailed information on industry price problems has been available to OPA.

Price movements in the copper wire and cable field have been irregular during the past year with some products moving up as much as 40 per cent while others have held virtually constant. It is expected that the price schedule will take account of these varying trends with some quotations being reduced substantially below present levels. The industry has been asked not to charge prices higher than those prevailing October 15, in a letter sent to the industry on October 29.

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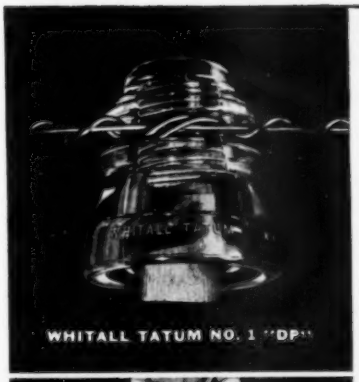
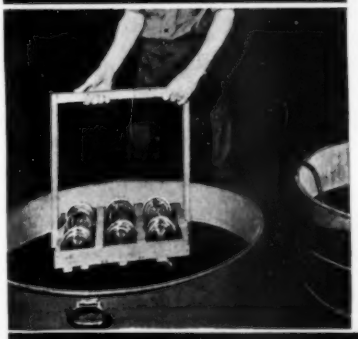
Telephone Workers Agree on Week's Delay in Strike

A strike called for midnight Friday, November 14, which would affect the long distance services of the American Telephone & Telegraph Co. in 42 states and the nation's capital, was postponed for at least a week. About 15,000 long lines employes, including 5,500 women, are involved in the threatened strike. The main issue in the dispute is the workers' union demand for elimination of geographical differentials in the pay scale, plus a basic wage increase of 4 per cent.

John J. Moran, president of the Federation of Long Lines Telephone Workers, an independent union, announced the walkout had been held up and the union's national council called into session in New York, November 21, at the request of Dr. John R. Steelman, director of the United States conciliation service.

Long distance private communication and 90 per cent of radio broadcasting would be tied up by such a strike, with the union maintaining radio broadcasts pertinent to defense. The union had previously cancelled plans to interfere with the transmission of news and newsphotos by wire. It also had assured the Civil Aeronautics





FAMOUS "WT" BRAND INSULATORS WITHSTAND SEVERE TEMPERATURE CHANGES

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RAIN or shine—cold or warm—Armstrong's Whitall Tatum Glass Insulators withstand severe temperature changes without breakage or failure. The lower illustration shows "WT" Insulators undergoing a thermal shock test at Electrical Testing Laboratories, New York. For your protection, all Armstrong's "WT" Insulators are made to conform to A. S. T. M. standards. See your jobber or distributor for complete information, samples, and prices. Or write direct to Armstrong Cork Company, Glass Insulators Department, 295 Fifth Avenue, New York City.

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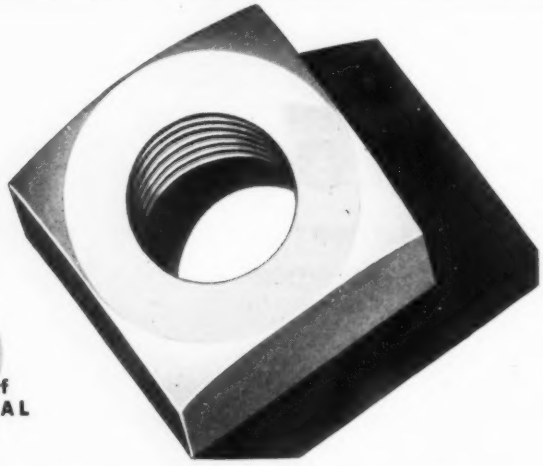

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L-M Nuts Help Cut Installation Time

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Authority, the army and navy signal corps, and communications branches that transmission for national defense and safety in flying would be maintained.

States which would not be affected by the planned strike are Washington, Oregon, New Hampshire, Vermont, Nevada and Montana, where long distance calls are handled by local operators.

The A. T. & T. Co. contends that the union has refused to resume negotiations for a new contract unless the management agreed in advance to immediate wage increases "regardless of conditions in various areas."

▼ ▼

Oslo Telephone Directory "Banned" by Nazi Censors

Now it is the heavy-gaited Oslo telephone directory which has offended the fine sensibilities of German authorities in Norway, according to the Norwegian Legation in Washington, D. C. Shortly after the 1941 edition appeared late in October, more than three months overdue, the Nazis discovered it still contained several listings for the Royal Palace, including numbers for the adjutants of the King and the Crown Prince.

They immediately halted distribution, ordered the entire edition destroyed and a new one printed. Upon learning that this would take several months and cost a half million kroner, the Nazis compromised by ordering the offensive page bearing the royal listings be torn out and replaced by a "correctly" printed one. This work is now going on. Meanwhile Oslo residents continue to use their 1940 directories which contain all the royal listings. (A kroner is in the neighborhood of .268 cents in U. S. money.)

▼ ▼

Expansion to Meet Telephone Needs of Bomber Plant

The Michigan Bell Telephone Co. has begun construction on the $360,000 expansion program designed particularly to connect the 975-acre Ford Bomber plant near Ypsilanti, Mich., with the outside world by telephone. The project will include a $10,000 addition to the telephone building at Ypsilanti to house an additional $100,000 worth of central office equipment.

"It will be necessary," according to Geo. M. Welch, president of the Michigan Bell, "to install a telephone system within the plant itself, including a private branch exchange, wires, cable, telephones, and teletypewriters. In fact, that phase of the telephone job will be comparable with that of creat-

XUM

ing a telephone system for a moderate-sized community."

There will be eight miles of underground conduit and cable between Dearborn and Wayne. That will connect with cable to be placed between Wayne and Ypsilanti. A branch cable will be constructed to the bomber plant. The entire project calls for 20 miles of cable.

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District Meetings of the Indiana Association

Six district meetings have already been held this month by the Indiana Telephone Association. Those yet to be held are scheduled as follows: Petersburg, November 26; and Muscatatuck Park, November 27. Meetings have been held at Delphi, Rochester, Columbia City, Turkey Run, McCormick's Creek and Greenfield.

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Upsurge of Telephone Traffic Result of Defense Program

Colorado

The Mountain States Telephone & Telegraph Co. gained 26,560 telephones in the first nine months of 1941, compared with a gain of 18,331 for a similar 1940 period. Long distance messages showed a gain of 11 per cent.

Frederick H. Reid, president of the Mountain States, reports that the company's reserves of basic equipment, supplemented by heavy construction programs in the past two years, are being taxed to the uttermost to keep pace with service demands.

* * *

Washington, D. C.

The number of telephones installed in September by the Chesapeake & Potomac Telephone Co. of Washington, D. C., was the largest in any single month in the history of the company. The number of telephones in use also reached an all-time peak.

On September 30 there were 305,449 telephones in service, an increase of 4,737 for the month.

The previous high mark in the number of stations in the District of Columbia was in August of this year, when the installation of the 300,000th telephone was given special notice by the company. The figure passed 301,000 before the month ended.

Average calls per day in September reached 1,432,205, against 1,183,971 a year previously, the highest daily average yet reported for any month.

Put These Money-Savers On All Your Lines

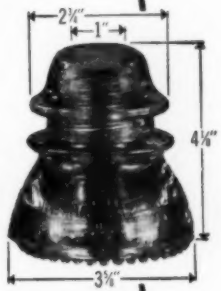
HEMINGRAYS don't tax your operating budget. They actually save money because they outlive poles, hardware and crossarms; "keep up their money-saving efforts for 50 years"— one prominent utility reports.

85-YEAR OLD secret glass "batch-mix," plus Owens-Illinois quality-controlled production, results in Hemingrays free of voids, stresses and strains... so homogeneous that sudden changes of temperature leave them unimpaired to work perfectly through sun, rain, hail, snow and sleet.

LOW IN COST and long in service-life ::: sold only by principal jobbers.

3 Favorites On Rural Lines

Hemingray Number 42, with its long leakage path keeping "toll" lines trouble free. Number 9, with its fast moisture run-off petticoat and sturdy, all-purpose Hemingray Number 16. Get samples.



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Money earned by Gray Pay Stations is largely extra revenue because they turn those non-paying, bothersome "Mind-if-I-use-your-telephone?" borrowers into cash customers.

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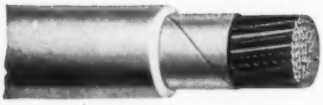
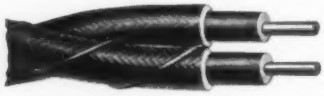
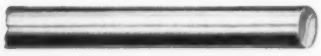


Telephone Switchboard Cable . . . Silk and Cotton Insulated and Leaded . . . 50 Pairs.

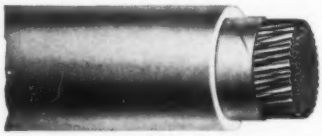


Twisted Pair Telephone Wire . . . Rubber Insulated and Braided.



Bare Copper or Bronze Wire.

Galvanized Steel Strand.



Telephone Cable . . . Paper Insulated and Leaded . . . 150 Pairs.

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Reducing Interference On Grounded Telephone Lines

TELEPHONY continues to receive requests from readers for information on ways and means to reduce and eliminate inductive interference from telephone lines, and in order to be of assistance to our subscribers, it is our desire to publish all available data on this subject.

One reader has sent us an article by H. E. Kent of the Edison Electrical Institute, published in *Electrical Engineering*, on the use of capacitors on electric circuits in order to reduce interference on grounded telephone lines, which may be of interest to telephone companies.

Mr. Kent's article follows:

"I should like to refer briefly to some co-ordinative measures which can be used where ground-return telephone circuits are involved. These are predominately measures applicable to the telephone system, since the measures . . . . for application to the power system effect approximately the same degree of reduction in influence whether metallic or ground-return telephone circuits are involved. It should be borne in mind that a ground-return circuit is inherently of the order of one hundred times as sensitive to induction as is a metallic telephone circuit. Consequently, while the power system measures . . . . greatly simplify co-ordination with metallic telephone circuits, in many situations additional measures will be required in the co-ordination of ground-return telephone circuits.

"The improvement of wave shape by means of capacitors . . . . is obtained by preventing the higher frequency harmonics in the source of supply (power) from reaching the rural (power) distribution system. In one of the cases where this method was applied it was found that, after the capacitors were connected at the supply substation, various small motors supplied by the rural distribution system still introduced appreciable harmonics, the effects of which were amplified by line resonance conditions.

"While this was not sufficient to disturb metallic telephone circuits, it resulted in appreciable noise in the ground-return telephone circuits. Application of an additional bank of capacitors to the rural circuit (power) at a point about 20 miles from the supply substation destroyed the resonance conditions and effected further reduction in the influence.

"Capacitors provide a means of largely eliminating the higher frequency harmonics in many situations, particularly in rural areas. However, it is not feasible to also reduce the lower frequency harmonics (particularly 180, 300, and 420 cycles) by this method. Where these low frequencies control, it is possible to improve conditions by reducing the sensitivity of the telephone set in this low frequency range but with no important change in sensitivity over the remainder of the voice frequency range.

"Two methods of accomplishing this are indicated in *Fig. 1*. The commonly used connection for a local battery telephone set is shown in *Fig. 1-A*. This is modified in *Fig. 1-B* by shunting the receiver with an inductance of 60 millihenries and by connecting a 0.75-microfarad condenser in series with the receiver. In *Fig. 1-C* the modification consists of transferring the receiver from the line to a location across the transmitter winding of the induc-

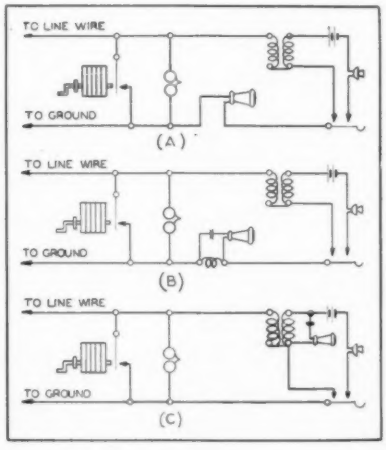

Fig. 1. Schematic diagrams of commonly used and modified connections of local-battery telephone set. ***(A) Connection in common use. (B) Modification employing receiver filters. (C) Modification employing reconnection of set.***

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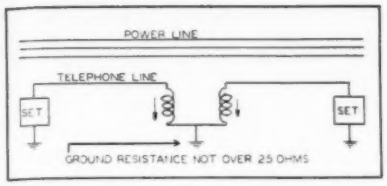

Fig. 2. Use of ring-through repeating coil to reduce noise induction in ground-return telephone line. ***(Note: Repeating coil connected as a drainage coil—that is, so as to offer low impedance to equal currents in the same direction in each winding as indicated by the arrows.)***

tion coil, and adding a one-microfarad condenser in series with the receiver.

"Field tests in several locations have shown that either of these methods effects reductions in noise of somewhat better than two to one on the average when the frequencies controlling the noise are in the range from 180 to 420 cycles.

"Similar results can be obtained by reducing the acoustical response of the telephone receiver at the lower frequencies. This can be done by punching a quarter-inch hole in the receiver diaphragm at a point one-third the distance across its diameter. Tests have shown that the reduction in the low-frequency noise thus obtained is approximately the same as that secured with the electrical filters. The advantage of the acoustical method lies in its simplicity. It may have some disadvantage from a maintenance standpoint since dirt can more readily enter the space back of the diaphragm.

"*Fig. 2* illustrates the use of a ring-through type of repeating coil in a ground-return telephone circuit to reduce noise by, in effect, transposing the circuit without materially impairing the talking and ringing efficiency of the circuit. The coil acts as a low-impedance drain from line to ground for noise currents resulting from electric induction. For magnetically induced currents the coil acts as a high impedance in series with the line.

"The effectiveness of the coil depends to a considerable extent on having approximately equal induction in the line on both sides of the coil. In long exposures, particularly where subscribers are distributed through the exposure, more than one coil may be necessary.

"In individual cases the application of capacitors for the improvement of the power system wave shape combined with a change in the frequency response of the telephone sets, or the use of repeating coils, permits the rendering of reasonably satisfactory rural telephone service over the

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ground-return line. However, as the load increases on the power line, and more motors are connected, it will become very difficult to maintain the extremely low influence of the power line.

"This, combined with greater demands made upon the telephone service, may make it impractical to render acceptable service over the ground-return line. Therefore, in applying these measures it must be recognized that in many situations they will offer only a temporary solution of the problem and that ultimately it will be necessary to 'metallicize' the line. Of course, in some situations the growth of the service requirements of both the power and the telephone will be such that these measures may last for a number of years. In other situations the growth of the load will be such that continual attention will be required and 'metallicizing' will necessarily follow in a very short time."

Finds Complaining Subscriber Responsible for Promotion

A business man in St. Louis, Mo., got into an argument with a telephone operator over the length of a long distance call. The supervisor intervened and attempted to persuade the man to accept the operator's verdict. He refused and the supervisor became a little provoked, implying that the subscriber was unreasonable.

The business man countered with the same charge against the telephone employe, citing a letter he had written a few months previously complimenting a long distance operator for the efficient manner in which she had handled his out-of-town calls. The supervisor was silent for a moment and then asked the caller to repeat his name. He did. She then confided she was the operator who a few months before had been promoted to the post of supervisor on the strength of the letter.

TELEPHONE MEN "CALLED TO THE COLORS"

DAVID R. EABY, formerly employed in the plant department of the Denver & Ephrata Telephone & Telegraph Co., Ephrata, Pa., is now serving in the United States Army. He is stationed at Camp Shelby, Mississippi. His father, C. E. Eaby, is vice president, general manager and director of the Denver company and both were honored in the "Fathers and Sons" department of TELEPHONY, March 25, 1939. David has a twin sister, Betty.

DAVID R. EABY

* * *

JOHN F. LONGLEY, formerly employed by the New York Telephone Co., has been called into service as a second lieutenant with the U. S. Signal Corps. Mr. Longley is a subscriber to TELEPHONY but did not know where he would be stationed so has directed that his magazines be sent to his New Jersey home "until I get back."

* * *

EMMETT WOOD, formerly employed by the Western Light & Telephone Co., at Goddard, Kans., has enlisted in the U. S. Signal Corps Army to serve his country.

* * *

WILLIAM F. TOFFLEMIRE, connected with the Mid-West Telephone Co. for the past five years, is serving with the Signal Reserve Training Corps at Fort Monmouth, N. J., where he will continue to do telephone work, according to a news dispatch from Cameron, Mo.

XUM

THANKSGIVING

By Anne Barnes

Traveling Chief Operator, Iowa Independent Telephone Association

"HE ENJOYS much who is thankful for little. Arthur W. Newcomb, in his "A Man's Thanksgiving," gives thanks to his Creator for things that would appear to be great tribulations. I wonder how he could thank God for the following hardships, among many others, he named: "Heavy blows of pain, stinging whips of hunger and cold; steepness and roughness of the way; jagged rocks of hardships; sloughs of discouragement; acid blight of failure . . ."

"Well, well," I thought, "It must take a deal of fortitude to be thankful for those things." But upon further reflection, it came to me that such a person *was not still in the throes of such miseries* at the time of his Thanksgiving prayer but had already overcome them. However, because of them he had been spurred on to surmount them, realizing that where there is a will there is a way—and he had made himself find the way.

It is not enough then that we express our thankfulness to our Creator for blessings received, if we have done nothing to earn them. Such thanksgiving usually comes from the lips rather than the heart.

If we have not tried to make life easier for people when we could do so, we are like one of two rivers in Palestine. These two rivers are really only tributaries of the same river. The water in one of them is dead and unfit for use; the water in the other is clear and sparkling with life. The reason for this is that one river receives and gives; the other receives and keeps.

MORAL: "We can be thankful to a friend for a few acres or a little money; and yet for the freedom and command of the whole earth, and for the great benefits of our being, our health, our life, and reason, we look upon ourselves as under no obligations."—Senecca.

Harrison on American-Canadian Defense Production Body

William H. Harrison was appointed, November 5, by President Roosevelt and Canadian Prime Minister MacKenzie King to represent the United States on the new Joint Defense Production Committee to coordinate the capacities of the two countries for the production of defense materials. Mr. Harrison is vice president and chief engineer of the American Telephone & Telegraph Co. as well as director of production for the Office of Production Management. The new committee was created by a resolution of the joint economic committee of the United States and Canada, the President announced.

Besides Mr. Harrison, the American members of the committee on defense production are: Chairman, Milo Perkins, executive director, U. S. Economic Defense Board; Navy Undersecretary James Forrestal, War Undersecretary Patterson, Lend-Lease Administrator Stettinius, and Maritime Commissioner Vickery.

In an address, November 6, before the fifth annual construction industry conference of the United States Chamber of Commerce, Mr. Harrison stated the peak of the defense construction effort has been reached and from now on both defense and civilian construction activities will gradually decline. Commending the construction phase of the defense effort as standing out as "one of the really fine things accomplished," Mr. Harrison stated that the nation's builders have just passed through the major stages of cantonment construction and that current emphasis is being placed on the erection of special-purpose plants such as munitions production plants. He stated that 40 per cent of these plants have been completed, predicting that 75 per cent of the presently planned program would be completed by the spring of 1942.

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Illinois Bell Agrees to Pay Increase for Collectors

The Commercial Telephone Workers' Union and the Illinois Bell Telephone Co. signed an agreement November 14 granting 296 telephone coin box collectors in Chicago pay increases averaging about 7 per cent.

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Send Your PAY STATIONS To Us

Pay stations rebuilt by us not only look like new, but they must meet the same rigid specifications.

We will gladly give you estimates on repairing or converting your present equipment.

Write today.

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NOTE—The Government's 6% excise tax is NOT assessed on unattended pay station calls.

AUTHORIZED AGENTS:

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TRANSMITTERS REBUILT BETTER THAN NEW—

Because of better methods and materials we are able to rebuild many of your old transmitters to give better transmission and a better appearance than when they were new.

Send in a Trial Order on our Money-Back Guarantee.

TRADE IN YOUR OLD TELEPHONES OR PARTS

For CASH

For REBUILT TELEPHONES

Or

Have us rebuild them into Late Style Wall or Desk Telephones.

Write us for our very fair Trade-in Offer.

We have in stock for prompt shipment —

- **New Receiver Shells & Caps**
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- **New Stretchem Rubber Rings for Desk Stand Bottoms**
- **New Transmitter Diaphragms.**

NEW OAK CABINETS

Rebuild Your Own Telephones

We furnish New Oak Wall or Bell Box Cabinets wired and ready for your equipment. Six sizes carried in stock — Special Sizes made on order.

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Personals

R. C. RENO (better known to his friends as "Pete"), managing editor of TELEPHONY, is now convalescing from a minor operation which he underwent Armistice Day. In the traditional spirit of the telephone industry, Mr. Reno keeps tabs on current happenings through the telephone at his bedside—and thereby has gained a new appreciation of the value, comfort and convenience of the instrument around which our industry revolves.

The messages, calls and remembrances from friends and business acquaintances have been especially appreciated by Mr. Reno. He hopes to leave the hospital and be at his home at 232 Lee Street, Evanston, Ill., in time for Thanksgiving dinner.

•

DUANE HEATH, manager of the Lacon exchange of Middle States Telephone Co. of Illinois, was injured October 23, when he fell from a pole while working on a line. He was taken to the Methodist Hospital in Peoria, where it was found that he had fractured his pelvis.

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CHARLES J. RUDEL has been appointed chief engineer of the Chesapeake & Potomac Telephone Co. of West Virginia, with headquarters in Charleston. A resident of Charleston since 1929, Mr. Rudel began his career with the telephone company in 1924 as a student engineer in Washington, after having been employed for about two years by the Western Electric Co. He is a native of Maryland and a graduate of Johns Hopkins University.

Mr. Rudel has held, successively, the positions of plant extension engineer, transmission and outside plant engineer and general plant supervisor. From the latter position he advances to become chief engineer.

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FLOYD J. BRANNICK, manager for the past eight years of the Wakefield District Telephone Co., Wakefield, Kans., tendered his resignation. Mr. Brannick intends to move with his family to a 110-acre farm he recently purchased near Green Forest, Ark. He expects to take employment in some government defense work in that vicinity, and operate the farm as a side line.

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CARL H. DAUBENDIEK, manager of the Jefferson (Iowa) Telephone Co., and **EARL GRIMM,** of Des Moines, Iowa, salesman for the Kellogg Switchboard & Supply Co., recently returned from a successful hunting trip in the Jackson Hole country in Wyoming.

Mr. Grimm shot a deer Monday, September 15. The following day Mr. Daubendiek shot an elk. On Wednes-

Answers to Traffic Questions Given on Page 40

1. Please read preface for information desired.
2. In recording a call, enter any details or information volunteered which you believe may help you in establishing a connection or in locating a called party, except that you always enter the calling name or firm name if given. In entering reports, codes should be used as prescribed. In any other case, the report should be written out in full.
3. The calling party should not be held on the line to exceed three minutes unless he expresses a desire to do so.
4. The intermediate operator does not receive a signal when conversation is finished; therefore, the circuit must be cleared by the operator who originated its use. Failure to follow this procedure results in a waste of circuit time.
5. In announcing a call to the information operator at a distant point, the name of the called place is given to assist the operator in locating the desired number in exchanges where the information operator performs directory work for more than one point.

XUM

Best Story of the Week—What's Yours?

A Benson, Minn., operator of the Camp Lake Telephone Co. last summer proved her ability to think fast in an emergency. Alone on the late night shift, one very warm night, the operator took off her dress, plugging in calls while clad only in petticoat attire. A breeze sprung up, and after she left her post to close a hallway door, the door to her office slammed shut and locked, leaving her on the outside, away from her switchboard, minus her dress — and in somewhat of a dither.

It required only a few moments' thought on her part to find a solution to the dilemma. Being a small person, she piled blocks up to a point where she was able to crawl through a small opening into the office.

day, September 17, Mr. Grimm shot an elk. On Friday of that same week Mr. Daubendiek bagged a black bear, which measured about 8 feet square after it had been skinned. The elk head and bear skin were left in Denver to be mounted.

Game was plentiful, Mr. Daubendiek reports, and besides shooting a considerable amount, he and Mr. Grimm also used up several rolls of movie film.

Their guide was well experienced, at one time having served as a guide on the hunting expedition of Theodore Roosevelt. The cook completed the outfit, except for 17 head of horses.

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MISS BELLE BERNETHA of Rochester, Ind., who recently retired after serving 44 years in the industry, with the Rochester Telephone Co., was honored recently at a luncheon given for about 30 members and guests of the Telephone Pioneers of America at the Indianapolis Athletic club. Miss Bernetha was presented with a plaque by the Pioneers' organization, commemorating her many years of faithful and efficient service to the telephone industry. She will continue to be a life member of the Pioneers.

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Tribute to **ALFRED SUTRO,** general counsel and a director of the Pacific Telephone & Telegraph Co., honoring his 50 years of association and service with the telephone industry was paid at a luncheon November 7 by N. R. Powley, president of the company, on behalf of its 38,500 telephone employes. Held at 140 New Montgomery St., San Francisco, the headquarters of the company, the luncheon was attended by directors, officers and departmental heads.

A feature of the occasion — "A Salute to Alfred Sutro"—was the presentation by employes of an historical drama tracing the development of the telephone business since 1891 when Mr. Sutro become associated with it.

In 1891, when Mr. Sutro began his connection with the telephone business, starting as a law clerk in the offices of Pillsbury, Blanding & Hayne, there were only 9,000 telephones on the entire Pacific Coast, and San Francisco and Los Angeles were the only cities having more than 1,000 telephones. Long distance service was limited to a few points, such as between San Francisco and San Jose, Oakland and Stockton, and between Los Angeles and nearby towns, Mr. Powley said.

In the past 50 years, the number of telephones has increased to a total of more than 2,198,000, and today 139 cities on the coast have more than 1,000 telephones each. Long distance lines inter-connect all cities and towns in this country. Four different transcontinental routes have been built since 1914, and radio-telephone connections carry calls to ships and overseas.

Mr. Sutro is counsel for various corporations and has long been a leader in business and cultural activities in California. Besides being a director of the Pacific company, Mr. Sutro is trustee of the Calamba Sugar Estate, director of the Pacific Lighting Corp., Pampanga Sugar Mills, and Calwa Co., president of The Book Club of California and member of the Roxburghe Club, San Francisco. Mr. Sutro is now a senior member of the law firm of Pillsbury, Madison and Sutro.

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ARTHUR LOWDY, manager of the Illinois Commercial Telephone Co., at Melvin, Ill., has been granted a three months' leave of absence, due to ill health. **PETE BECKER,** of Paxton, will serve as acting manager in his absence.

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ALLEN G. BURKE, for a number of years owner of the Bancroft Telephone Co., Bancroft, Neb., has been named secretary of agriculture for Nebraska. Mr. Burke was formerly a speaker of the Nebraska house.

Confidence is EARNED

Confidence in a man or a product is not bestowed...it must be earned by a record of reliable performance. Reliable performance on the line for more than thirty years is the sound foundation on which the confidence in L-M Pole Line Hardware and Construction Specialties is built. From the braces for your topmost crossarms to the anchor in the ground, the complete L-M line includes everything you need to keep your lines "ship shape" and low in maintenance cost.

LINE MATERIAL CO.

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WALSCO STAPLE DRIVER

A New Compact Tool For Neater and More Speedy Installation of Open Wires

- This new tool makes all wire installations twice as easy, much neater, saves half the time.
- Wires can be stapled in corners, behind pipes, into moldings, and other places never before accessible.
- Wires can be attached to hard surfaces such as brick, mortar and plaster.

The Walsco Staple Driver is jam-proof, feeds its staples automatically, and attaches wires or cables up to ¼" in diameter. Staples come in strips of approximately 2 dozen, in several colors, and are made from carbon tool steel, therefore enter hard walls easily. Damage to wire is impossible, as driving depth of staples is controlled and adjustable. The tool will pay for itself on the first job.

Catalogue No. 500 Tool Finish.....$3.70

Catalogue No. 501 Dulux Chromium Finish $4.65

Distributed by all major telephone supply houses, radio parts wholesalers, and the G.E. Supply Corp. For more details and free literature, write to:

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- Withstands severe punishment without breaking or coming apart.
- Ribbed expanding arms securely fastened to blades.
- Expands into solid earth to 2½ times its size.
- Blades expand in opposite directions equalizing pull strain.
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- Grooved guideways on blades and base plates make easy expansion.
- Various sizes hold from 3,000 to 42,000 pound loads.
- Easily installed in any position.

A·B·CHANCE CO·
CENTRALIA MISSOURI

Florida's "Best Ever" Convention

(Continued from page 26)

to build the plant should be returned to the public either in the form of improved service or reduced rates."

The industry's strict compliance with governmental accounting regulations in the period prior to 1930, he pointed out, was due to the insistence of the telephone officials rather than watchful enforcement by governmental officials. Mr. Stubbs pointed out many of the vast changes in governmental regulation, some of them beneficial and some otherwise.

The tax item, he asserted, has changed beyond all recognition. Instead of being each year but half the operators' wages, the tax now exceeds all traffic expenses, including operators' wages.

Mr. Stubbs discussed, one by one, the various forms of taxation that now concern telephone men, including ad valorem income, social security and excise taxes. Then taking up the subject of regulation and considering the changes that have taken place in rate-making procedure, the speaker discussed various aspects of the wage-hour law. Commenting on this law, he said:

"However heartily we might endorse the law as a whole, we cannot shut our eyes to the fact that it did establish an additional set of technical rules and regulations which we must know and with which we must comply."

From the balance sheet accounting viewpoint the speaker directed attention to one major change in principle, that requiring a statement of a utility property at the original cost when first dedicated to public use.

The old outlines of the usual accounting offices are hardly discernible today, declared Mr. Stubbs, as a result of the meticulous record keeping and careful reporting now required by the federal government in connection with the wage-hour, social security and companion laws. And, in addition, billing practices have had to be changed in order to comply with recently-enacted tax laws affecting our customers.

The government, he said, can no longer be personified as the mild gentleman casually watching the good telephone child grow so large and on such good lines as to be an invaluable asset in peace or war; the watching is no longer casual and the mildness has become energetic efficiency, even though the child is still good.

The closing event of the afternoon program was an address by President-Elect J. S. Gillentine of Fort Myers. Before getting down to the subject assigned to him, the speaker expressed the opinion that it is a good thing for the national association to have an office in Washington.

Mr. Gillentine stated that Mr. Brorein had given him the subject "Telephone Philosophy" and asked him to talk about 20 minutes. Never having heard of the subject before, he said he would do as the minister does who takes his text and preaches from it.

"Most Americans know that we are at war, but nobody has declared war because it is too old fashioned," asserted Mr. Gillentine. "One nation wants to help another and takes it over to protect it—by killing all its citizens.

"Telephone companies must understand," said the speaker, "that they are not going to fare as well in this war. The easiest time the telephone companies ever had was during the last war when they were permitted to speak in the name of the government because it owned them. Everything that went wrong regarding service could be blamed on the government. When the government spoke it was final.

"The government has given every indication now that they will not take us over. We might as well understand that we are going to carry all the burden ourselves. If we are to carry through the defense program, we will have to give up some things.

"The present-day restrictions are going to put some 20,000 industries out of business but they will find that they are destroying the framework that is necessary to carry on the defense work. I look forward to a lightening of the burdens placed upon business and a more intelligent view of the whole thing.

"The question is what shall we give up and what shall we continue? I am glad to hear that the theory of the Bell is to keep the long distance lines open to meet the demands. When you paralyze the 'nerve' there is not much going on at that time.

"We should extend local service as far as possible if we can. We should grade-down that service but the toll plant is the important one. I would like to see the policy adopted by the Florida association and the national association that the long distance lines must be expanded. This cannot be done individually; we must work through

XUM

our associations, state and national, and speak in one voice. If handled through one man who states, 'I am the voice of thousands,' we will get a lot done and accomplish our aims.

"It is just a matter of educating the public on our requirements which takes three 'P's'—push, patience, and perseverance. All the water in the oceans cannot sink a ship unless you get water inside the ship. There is no defeat for any telephone worker unless there is defeat in his heart," declared Mr. Gillentine in concluding his inspiring address.

At 3 o'clock, simultaneous with the meeting of the telephone men, traffic employes assembled in the Sun room on the first floor of the New Florida Hotel for a conference under the direction of Harry E. Nott, traffic superintendent of the Peninsular Telephone Co., Tampa. After the presentation of an interesting paper by Mrs. Elma Worrell, chief operator for the Peninsular Telephone Co., at Lake Wales, on the subject, "Supervisory Training," the time was given over to an open forum on the questions raised in her paper.

Telephone men and traffic employes all participated in the banquet, served at 7 p.m. in the Banquet room of the hotel, O. C. Stanley officiating as toastmaster. The feature of the evening's program was a most interesting address entitled "Fifteen Minutes of Telephone Talk," by Carl D. Brorein, past president of United States Independent Telephone Association as well as the Florida association.

Among the exhibitors represented at the Florida convention were the following companies: Automatic Electric Company; L. M. Berry & Co., Cook Electric Co., Electric Storage Battery Co., Graybar Electric Co., Kellogg Switchboard & Supply Co., Pat Baldwin, Inc., National Carbon Co., North Electric & Mfg. Co., Raybro Electric Co., Reliable Electric Co., John A. Roebling's Sons Co., Stromberg-Carlson Telephone Mfg. Co., Westinghouse Electric Co., and James R. Kearney Corp.

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Nebraska Continental Gets Increase at a Beaver City

An increase in rates at its Beaver City exchange was granted the Nebraska Continental Telephone Co. of Columbus by the Nebraska State Railway Commission on October 8. Net rates for business service have been $1.75 for one-party wall sets and $2.25 for desk telephones or monophones. A new rate of $3.25 is authorized for all types of business telephones. Residence rates that have ranged from $1.25 to $1.75 per month are equalized at $1.75, while rural rates are increased from $1.25 to $1.75, with the rural business rate fixed at $2.50.

The company had asked for a business rate of $4, a residence rate of $2.50, and rural residence rate of $2.00 with business rural rate of $3.00 a month. The commission said that while there might be some question as to their reasonableness so far as return is concerned, from a comparative standpoint they are too high.

Protestants had asked that the commission average the yearly income for the past 12 years since the exchange was taken over by Continental company. The commission held, however, that past earnings are not controlling as a measure for determining present rates and that the rate of return to which a public utility is entitled must be based on conditions as they exist—and as it is reasonably certain they will exist in the immediate future.

Since 1934 net annual earnings ranged from $459 to $1,190, with small deficits for the last two years. The commission estimates that the authorized rates will produce revenues of $9,332, and with operating expenses and taxes of $7,790, there will be a net of $1,542, representing 3.51 per cent on the fair value and 3.39 per cent on the net book investment. These valuations the commission said would be accepted for purposes of the rate case because of advanced cost of labor and materials.

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Chicago Telephones Reach All-Time High

Telephones in use in Chicago increased 6,412 in October to a new all-time record high of 1,067,336, according to the Illinois Bell Telephone Co. This was one of the largest monthly gains ever recorded in the city and represented the 27th consecutive monthly increase.

For the first 10 months this year there was an increase of 35,852 as against 26,679 in the corresponding period last year. The 1,067,336 telephones reported as of October 31 compare with 1,023,335 a year ago and contrast with the 1933 depression low of 793,546.

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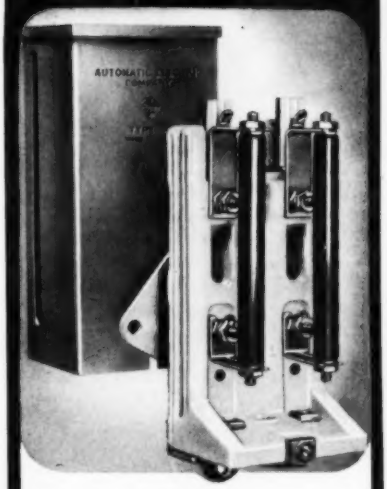
Plastic Tax Tokens

Clamor for a change in the size of Colorado's new plastic sales tax tokens arose when the bright red pieces began dropping into pin ball machines, music boxes and pay telephones. But changing them would cost too much, said State Revenue Director F. R. Carpenter.

SANDS
SUBSTATION PROTECTOR



TYPE 15
for Indoors or Outdoors

Here is a weather-proof design which provides better protection at lower cost on any type of line. It saves installation cost because its new "Four Point" bracket makes mounting easier. It pares maintenance expense, thanks to the Type 2105 discharge block, which resets itself after operation.

Next time, order Type 15; it assures you complete protection.

"UL" stamped on the case means listed by Underwriters' Laboratories, Inc., as meeting their requirements for such use.

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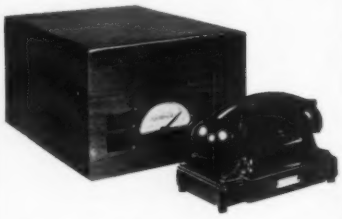

The Peatrophone

"Amazing," "Most interesting," "A new source of income," "It will fit our situation" . . . these are a few of the comments telephone companies have made after learning about Peatrophone, "The Mechanical Secretary." We will be glad to advise you about our leasing plan which makes Peatrophone service obtainable by your subscribers for a small monthly rental without investment by you.

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CUT SERVICE COSTS WITH

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LONG-LASTING BATTERIES

Get double savings with Ray-O-Vac Telephone Batteries . . . 1. Fewer Service Calls. 2. Less frequent Battery Replacements. Start now to standardize on Ray-O-Vac Batteries

RAY-O-VAC COMPANY

MADISON, WISCONSIN

Kalb Appointed Assistant Chief Engineer of Kellogg

Robert M. Kalb, who for 13 years was research engineer of the Bell Telephone Laboratories of New York, has just been appointed assistant chief engineer of the Kellogg Switchboard & Supply Co., Chicago.

After graduating from Ohio State University, department of electrical engineering, Mr. Kalb took post-graduate work at Columbia University. For a time he taught in the electrical engineering laboratory at Ohio State University.

Mr. Kalb is well-known for his research engineering work on transmission and circuit problems. Several patents have been issued to him for improvements on various telephone apparatus. He is also the author of a number of valuable articles on magnetics.

▼ ▼

Philco Introduces New Portable Sound Amplifier

A new portable sound amplifier, Model 905-A, built compactly and light in weight, and designed to be set up quickly and operated easily, has just been introduced by Philco Corp., Philadelphia, Pa., it was announced recently by Charles E. Gerhard, manager of parts sales.

A feature of the new Philco amplifier is its lapel microphone, states the company. A spring clip holds the microphone securely in lapel or shirt pocket, enabling vocalists and entertainers to move about the stage without walking away from the microphone. A stand microphone is also available if desired.

Model 905-A requires no elaborate preparation or complicated wiring, it is stated. It needs only to be opened, set up and plugged in to any 110-volt, 60-cycle outlet. Its output is rated at 15 watts. The carrying case of the new model measures 16 ins. by 14 ins. by 10 ins., and the set weighs 35 pounds complete.

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Common Battery Service For Mt. Pulaski, Ill.

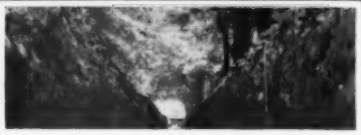
The 661 subscribers of the Mt. Pulaski (Ill.) Telephone & Electric Co. are now enjoying improved service as a result of a cut-over late last spring from magneto equipment to a Stromberg-Carlson common battery switchboard.

The new switchboard consists of two Stromberg-Carlson No. 17 non-multiple sections, each with a capacity of 300 central energy and 30 magneto lamp-ended lines, providing ample accomodations for continuing growth in the number of the company's subscribers.

SINCE 1889

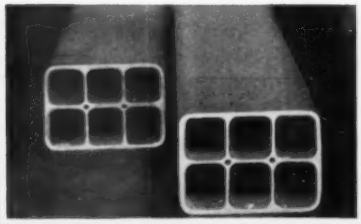
NATCO

CLAY CONDUIT



The proved and standard Protection for Underground Telephone Cables.

Cheapest in the long run. Highest quality and a full line of shapes.



National Fireproofing Corp.

202 E. Ohio Street, N. S.
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A simple twist of the wrist and they're on . . .

Specify CHANCE CABLE RINGS

- Spiral gripping hook aids installation and holds tight.
- Smooth curved contour of surface minimizes sheath cutting.
- Special shoulder hook prevents jumping.
- Double coated galvanizing insures long life.
- Tough cardboard strap makes unique "No Tangle" pack for easy handling.
- Packed in boxes showing kind, quantity, ring size and strand size.

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At present, the switchboard is equipped with 400 central energy and 40 lamp-ended toll and rural lines, the latter providing the operators with flashing lamp signals which enable them to determine whether calls are for them or for a party on the line.

Machine-ringing, universal cord circuits incorporated in the switchboard provide for tripping of the ringing current instantaneously during either the ringing or silent periods.

The cut-over was marked by the ease with which it was accomplished, attributable to the foresight of the company in its plant construction. When the present plant was built, in 1906, underground cable in conduit over a concrete base was put in which had the needed cable capacity to take care of all growth since then.

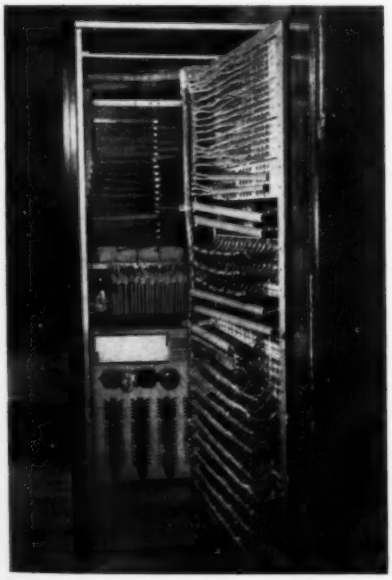
The self-contained feature of the Stromberg-Carlson switchboard provided an arrangement whereby all local, rural and toll line relays and cord circuit relays are incorporated within a section, so that little labor was required to install the switchboard.

The history of the telephone company dates back to 1901 when Dr. Collins, a Lincoln dentist, built some equipment and a switchboard for Mt. Pulaski in a small shop of his own. He located the home-made crude board in the rear of a local drug store, and started to serve 10 subscribers. In 1906 the exchange was moved to the second floor of the same store where a Stromberg-Carlson magneto switchboard was installed. Dr. Collins sent L. J. Wylie to Mt. Pulaski to construct its underground cable plant and install the new magneto switchboard.

Mr. Wylie left Mt. Pulaski in 1907 for Decatur to build and manage the plant of the old Decatur Home Telephone Co. for Dr. Collins. In 1920, after Dr. Collins' death, Mr. Wylie was made trustee of his estate and has since operated the Mt. Pulaski company with Fred Mayer as local manager.

Mr. Mayer has been with Mr. Wylie since 1901 when the company was founded, and his son, Fred Jr., joined him as his assistant in 1924. This father-and-son team, although working with magneto equipment during all of their telephone experience, installed the new common battery switchboard without the slightest trouble, it is stated.

New Stromberg-Carlson non-multiple switchboard recently installed at Mt. Pulaski, Ill., for the Mt. Pulaski Telephone & Electric Co.



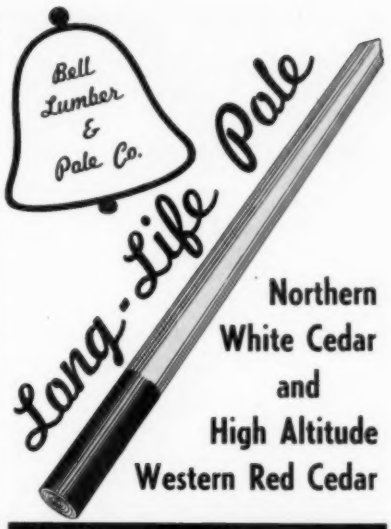
Rear view of one section of Mt. Pulaski's new switchboard with relay gate open, exposing the line terminations.

TELEPHONY Priorities Article Wins Commendation

In a letter received from D. R. Tibbetts, secretary of the Moraga Community Telephone Association, of Moraga, Calif., the article which appeared in the September 13 issue of TELEPHONY under the caption "A-10 Priority Rating for Repairs Given Industry" was given high commendation. Mr. Tibbetts adds that, prompted by this article, his company had a stamp made for use in certifying P-22 equipment orders.

Telephone Rates Increased At Tama, Iowa

The Central Iowa Telephone Co. has announced an increase in rates at Tama, Iowa. The rate on main line business telephones is raised 25 cents per month and the main line residence rate is increased 15 cents.



Northern White Cedar and High Altitude Western Red Cedar

Put Strength and Permanence Into Your Lines With Bell's LONG-LIFE POLES

Full Length Machine Shaved Full Length Treated

BELL Long-Life Cedar Poles average consistently better quality and greater strength than required by approved specifications.

To give you stronger, longer lasting, better appearing poles that save you maintenance money, BELL uses a dependable performing shaving machine that (1) rounds and smooths the pole (2) takes off excessive sapwood (3) removes bulging knots (4) prepares pole for full length treatment in new full-length dipping vats.

—the poles are sterile
—increased life above ground
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Also, a BELL incising machine spreads the fibres at the ground line area so that the butt receives maximum sapwood penetration with No. 1 A.W.P.A. creosote oil.

An added factor in BELL quality is that BELL production and manufacturing requirements are unusually stringent. Every process in the making of BELL poles from the tree stump to the finished product is done by skilled workmen under careful supervision.

Specify BELL Long-Life Cedar. We have a 50-year background in the production, manufacture, and distribution of cedar poles.

BELL LUMBER AND POLE COMPANY
MINNEAPOLIS, MINNESOTA

Write for a copy of our Cedar Pole Data Book.

UNINTERRUPTED SERVICE
— Clearer Lines

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NON-GROUNDING RARE GAS ARRESTERS

Used for many years by leading Railroads for vital Telephone, Telegraph and Signal Circuits.

Type MCD (illustrated) interchangeable with your present carbon block protectors.

Write for Catalog 39-A describing

Arresters
Anti-Noise Relays
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L. S. BRACH Mfg. Corp.
55-63 Dickerson St. Newark, N. J.
Signal Circuit Engineers Since 1906

A Super Value for Rural Subscribers

SUTTLE SPECIAL COMPACT

A fine talking re-manufactured telephone with excellent ringing and high-voltage generator that does a swell job out on rural lines. It is manufactured with a genuine Western Electric transmitter, but you cannot specify make of other parts. All details same as our highest-priced wall compacts.

SUTTLE SPECIAL WALL COMPACTS

No.	Gen.	Ringer	Price
153	3-Bar	1000 ohm	$10.50
154	4-Bar	1600 ohm	11.25
155	5-Bar	1600 ohm	12.00

Lightning Arrester Installed, extra.....45c
Push Button (specify purpose), extra.....50c

Write for Suttle Catalog on complete line of telephones and supplies

SUTTLE EQUIPMENT CO.
Lawrenceville, Illinois

New Stock Issue For Mutual of Hawaii

The Mutual Telephone Co. of Honolulu, Hawaii, filed a registration statement with the Securities & Exchange Commission, Washington, D. C., covering 100,000 shares of capital stock, $10 par value a share. Stockholders of record as of October 15 will receive one share for each four held. The company will issue transferable warrants (expiring December 20, 1941) evidencing the right to subscribe for full shares of stock.

The net proceeds from the offering will be to repay its short-term loans, estimated at $920,000, and to provide additional working capital for replacements, improvements and betterments to plant.

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Carolina Telephone Files 10,625 Common Shares

Carolina Telephone & Telegraph Co., Tarboro, N. C., on November 5 registered 10,625 shares of $100 par value common stock with the Securities & Exchange Commission.

Holders of the company's outstanding common stock of record November 26 will receive warrants entitling them to purchase the new shares in the ratio of one for four at $100 a share. Purchase warrants expire December 29, and the company then may re-offer any unsubscribed portion.

Proceeds will be used for the repayment of a $830,000 bank loan, plant additions and for working capital.

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Telephone Company Sued By Housing Authority

A test suit to determine who shall pay $1,170 required to remove or relocate telephone poles and cables at two sites of a public housing project was filed in circuit court at Belleville, Ill., October 17, by the St. Clair County Housing Authority against the Southwestern Bell Telephone Co.

The suit in equity was agreed upon to establish a precedent, after the company and housing authority had failed during weeks of negotiations to arrive at an agreement. The company has announced it does not want to delay or oppose the construction program, but that since the project is for public benefit the public, through the authority, should stand the cost of changing poles and lines on the site.

Filed by H. Grady Vien, housing authority attorney, the petition sets forth that "by virtue of a city ordinance certain streets and alleys are closed to public use and the defendant telephone company has no right to continued use of vacated areas."

SPUN CABLE EQUIPMENT

Saves 50% to 75% over any other method of suspending aerial cable.

1. The Model "B" Spinner
2. Neale Type "B" Spinning wire
3. Little Giant Slack Puller
4. Lashing Wire Clamps
5. Lead Shields

Write your jobber or direct to factory for prices and literature.

NEALE MANUFACTURING CO.
TOPEKA, KANSAS

SOMETHING'S HAPPENED INSIDE!

Look, folks — it's pay dirt! But that's nothing compared with what Burgess engineers have discovered — a revolutionary new material that practically eliminates internal short circuits! And its application to the *new* Twin-Six Telephone Battery is exclusive with Burgess!

SEE FOR YOURSELF how "Sealed-in-Pliofilm" remarkably improves the *new* Twin-Six — Write for full information.

BURGESS BATTERY COMPANY
Freeport, Ill., Dept. 1122

XUM

Commissions and Courts

Exchange Ordered to Install Common Battery

The Perham Telephone Exchange is required, by the terms of an order issued November 6 by the Minnesota Railroad & Warehouse Commission, to install and place in operation at Perham, Minn., a new switchboard equipped with common battery lines for local service and magneto lines for rural service.

The company is further ordered to cease and desist from discriminatory practice in the conduct of its business and to correct conditions revealed in the commission's findings which contribute to inadequate telephone service. It is required to appear before the commission January 15, 1942, and make a report as to its compliance.

According to the commission findings, the Perham exchange serves 260 local, 13 rural and 280 service stations. "The central office equipment and 70 per cent of its station equipment," the commission finds, "is obsolete, worn out and unfit for further use and frequent interruptions in service occur." The commission finds, further, that the company has been negligent in the maintenance of its property and has failed to cooperate with the Perham Rural Telephone Co. in the maintenance of telephone service in the rural district contiguous to Perham and that a qualified telephone man, competent to maintain the exchange in an efficient manner, is necessary in the public interest.

Tulsa Exchange Service Ordered for Sanitarium

The Southwestern Bell Telephone Co. is required to render Tulsa, Okla., telephone exchange service to Oakwood Sanitarium, Inc., which is located approximately half way between the exchange areas of that company at Sand Springs and Tulsa.

The sanitarium has been receiving Tulsa "foreign exchange service" at the rate of $4 per mile, or fraction thereof, between the Tulsa and Sand Springs offices, plus 25 cents per one-quarter mile, or fraction thereof, for service beyond Sand Springs in the initial rate area. In addition the sanitarium has been paying the Tulsa business rate of $7.25 per month. The total monthly charge to the institution has been $37.75, plus $2.16. The distance between Tulsa and Sand Springs city limits is 2¼ miles.

Dr. Smith, manager of the sanitarium, complained that these charges were excessive, alleging that he maintains an office in Tulsa where much of the business of the sanitarium is transacted and that his institution should be given regular Tulsa exchange service. The commission upheld this contention and stipulated that the sanitarium shall pay on a direct flat rate, plus an excess mileage basis from the Tulsa exchange.

To Trade Exchanges If Cantonment Is Established

A conditional contract in which the Southwestern Bell Telephone Co. agrees to trade its telephone exchange at Webbers Falls, Okla., plus $1,000 in cash to E. K. Cross for his telephone exchange at Braggs, Okla., if an army cantonment is constructed and placed in operation at Braggs, was approved by the Oklahoma Corporation Commission November 4.

No toll lines are involved in the proposed transfer of ownership. The Southwestern Bell also agreed to turn over to Mr. Cross any wire or other materials which it may not utilize in rebuilding the Braggs plant.

At the hearing in the proceeding Southwestern Bell attorneys and witnesses stated that, after a survey had been made by the army quartermasters' department of telephone facilities at Braggs, the signal office of the Eighth Corps Area requested the Bell company to be ready to furnish telephone facilities to the cantonment, if constructed.

Mr. Cross, Southwestern Bell officials testified, approved the proposed agreement, stating that he could not afford to make the additional investment which would be necessary to serve the cantonment. The Braggs exchange serves only three business telephones, six residence and 11 switched telephones, while the Webbers Falls exchange is considerably larger and has a book value of about $7,000, according to the testimony.

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The commission approved the conditional contract with the understanding that it will be void unless the army camp is built and occupied and that the agreement may have no bearing as evidence on possible future rate applications.

E. K. Cross was not present at the hearing but entered no protest and is said to be agreeable to the trade. Bell counsel introduced a copy of a letter written by Louis Pitcher, executive vice president of the United States States Independent Telephone Association, to A. J. McBean, New York, A. T. & T. Co. attorney, placing approval of the association on the proposed deal.

B. Richardson, telephone engineer for the Oklahoma Corporation Commission, stated that E. K. Cross owns telephone exchanges at Braggs, Warner and Oktaha, is an experienced telephone man and is able to give good service to Webbers Falls, if he acquires that exchange.

▼ ▼

Summary of Commission Hearings and Rulings

California Railroad Commission

November 10: The commission authorized the Pacific Telephone & Telegraph Co. and the Southern California Telephone Co. to modify certain rate schedules applicable to attendant's, intercepting, and vacant level truck between mechanical equipment and private branch exchange and to key equipment systems for airway traffic control.

November 10: The commission authorized the Exeter Telephone Co. Ltd., of Exeter, to increase its rates for telephone service.

Illinois Commerce Commission

November 17: Hearing at Chicago in the matter of petition of the city of Berwyn for a reduction in toll rates between the cities of Berwyn and Chicago by the Illinois Bell Telephone Co.

November 18: Hearing at Springfield in the matter of proposed rates for service in Shawneetown filed by the Illinois Commercial Telephone Co.

November 19: Hearing at Springfield in the matter of proposed advance in rates for service in Brownstown filed by the Fayette County Mutual Telephone Co.

Indiana Public Service Commission

October 29: Petition filed by two subscribers of the Darmstadt Telephone System and 12 subscribers of the Inglefield Telephone Co. asking that the Indiana Bell Telephone Co. (Evansville exchange) be permitted to serve them, claiming that present service from Darmstadt and Inglefield companies is inadequate.

October 31: Petition of the Union Telephone Co. for authority to revise and increase rates for telephone service at Burlington and Buck Creek, granted except with respect to application for authority to collect a 10-cent charge for toll through exchange (Indiana Bell Telephone Co. calls excepted).

October 31: The commission granted the petition of the Eastern Indiana Telephone Co. for authority to substitute automatic for manual service at Dunkirk and to effect rate increases ranging from 25 to 75 cents a month.

November 3: Petition filed by the Northern Indiana Telephone Co. for permission to buy and Sarah E. Gaskell for permission to sell the physical assets and other property of the Tippecanoe (Ind.) Telephone Co.

November 5: Petition filed by Indiana Telephone Corp. for authority to issue and sell 3 per cent serial notes in the principal amount of $125,000. Notes are not to constitute a mortgage on property and money derived from sale is to be used for improvement and extension of property and to reimburse company treasury for money already expended.

Kansas Corporation Commission

October 30: The commission granted the application of the Central Kansas Telephone Co. for permission to discontinue its Harris exchange.

November 6: The commission authorized the Southwestern Bell Telephone Co. to file rates for dial service at Severy.

November 6: The commission authorized the American Telephone Co. to file rates for common battery service at Baldwin.

November 17: Hearing on application of Percy J. Leftwich for a certificate of convenience and authority to transact the business of a public utility under the name, Hiattville Telephone Co.

November 17: Hearing on application of the Hiattville Mutual Telephone Co. for permission to transfer its franchise and cease operating as a telephone exchange at Hiattville.

November 24: Rehearing on application of Southwestern Bell Telephone Co. for permission to file and put into effect standard toll rates between Emporia and Saffordville.

Minnesota Railroad & Warehouse Commission

November 13: The commission authorized the Tri-State Telephone & Telegraph Co. to purchase from the St. Croix Rural Telephone Co. a telephone circuit, including drop wire and subscribers' station equipment serving nine rural subscribers in the vicinity of Stillwater. All members of the St. Croix company had agreed to the sale and to subscribe to multi-party rural service from the Stillwater exchange of the Tri-State company.

November 13: The commission approved a 25-cent monthly increase in rates for one and two-party business service, for one and two-party residence service and rural multi-party line service by the Chisago City Telephone Co., of Chisago City.

November 13: The commission authorized the Rural Telephone Co. to increase its rates for telephone service in the villages of Osseo and St. Michael. According to the new schedule the individual line business rate will be increased by 75 cents; a two-party

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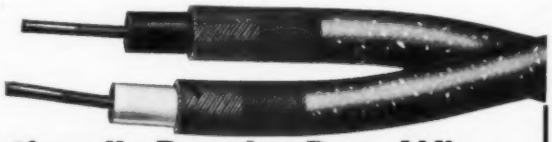

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business rate of $3 is established; the individual line residence rate is increased 25 cents; and a two-party rate of $1.75 established. Increases ranging from 25 cents to 75 cents are approved for rural service.

November 13: The commission approved the joint application of the Hazel Run Telephone Co. for permission to sell, and the Clarkfield Telephone Co. for permission to buy all the physical properties of the former, including central office equipment in the village of Hazel Run and pole lines, wires, telephone stations, etc., in the village and rural territory adjacent thereto.

December 1: Hearing at Zumbro Falls on the application of the Zumbro Falls Farmers Telephone Exchange for authority to increase rates in that city and adjacent rural territory.

New York Public Service Commission

November 19: Hearing at New York on the proceeding on motion of the commission as to certain changes in the rates, charges, rules and regulations of New York Telephone Co.

Oklahoma Corporation Commission

November 4: The commission approved a conditional contract under which the Southwestern Bell Telephone Co. agrees to trade its telephone exchange at Webbers Falls, plus $1,000 in cash, to E. K. Cross for his telephone exchange at Braggs, the deal to be consummated only in the event that a cantonment is constructed at Braggs. It is represented that the present owner of the Braggs exchange would be financially unable to expand its facilities to meet the needs of an army cantonment.

Pennsylvania Public Utility Commission

November 1: The commission authorized the proposed tariffs of the Garfield Extension Telephone Co. and the Sandy, Union & Brady Telephone Co. to become effective on the scheduled dates. Each tariff provides substantial increases in existing rates.

November 1: The Shaefferstown Rural Telephone Co. has filed a supplement to its tariffs withdrawing extra charges for handsets.

November 1: The West Branch Telephone Co. has filed a supplement to its tariffs eliminating the extra charge for hand set or desk set telephones.

November 1: The Citizens Mutual Telephone Co. filed a supplement to its tariffs breaking its territory up into four separate local exchange service areas. At present the company offers unlimited local exchange service throughout the 10 exchanges in its territory.

Wisconsin Public Service Commission

November 12: The commission authorized the Wisconsin Telephone Co. to extend services in Rock township, Rock county, and in the townships of LeRoy and Westford, Dodge county.

November 17: Hearing at city hall in Boscobel on application of the Boscobel Telephone Co. for authority to increase rates.

November 18: Hearing at Blanchardville on application of the Moscow Telephone Co. for authority to increase rates.

November 15: The commission authorized the Wisconsin Telephone Co. to extend service in the town of Emmet, Dodge county, and Turtle township, Rock county.

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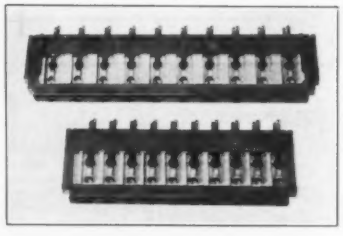

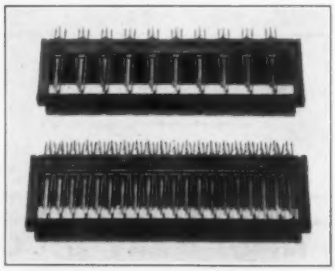

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OBITUARY

ROBERT MERRITT MATTESON, for the past nine years vice president and manager of the Community Telephone Co. of Wisconsin, died at Black River Falls, Wis., Armistice day, November 11, of a heart ailment following a brief illness. He was 62 years old.

Mr. Matteson was born at Joliet, Ill., August 31, 1879. His great grandfather was governor of Illinois from 1853 to 1857. He had been identified with the telephone business 39 years, his first employment being with the Chicago Telephone Co. Later he held the position of manager with the Tri-City Telephone Co., of Clinton, Iowa, and also with the Automatic Home Telephone Co. of Pontiac, Ill.

In 1922 Mr. Matteson returned to Joliet, as operating manager of the National Telephone & Electric Co. From 1929 until 1932 he was associated with the Community Telephone Co. in Chicago.

Survivors include his widow, one son (Charles), a grandson (John) of Waukegan, Ill.; also two sisters, one residing in Detroit, Mich., and the other in California.

Mr. Matteson was a member of the Masonic Lodge, the Rotary Club and the Independent Pioneer Telephone Association.

▼ ▼

I. T. & T. Reports Gain In Foreign Telephones

Telephone operating subsidiaries of the International Telephone & Telegraph Corp. in nine foreign countries report an aggregate net increase of 39,459 telephones in service during the first nine months of 1941. The announcement states that this increase represents a most careful use of materials as well as the application of teamwork, particularly by the telephone company managers in various countries in Latin America, in making equipment available where it is most needed with first considerations to hemisphere defense and general public service.

Gift Suggestion

PIONEER MEMBERSHIP: What more appropriate and appreciated Christmas remembrance for telephone men and women than a membership in the Pioneer association. Also a service emblem or pin. For those who are already members, one of our beautiful service pins would be appreciated. J. K. JOHNSTON, Secretary, Independent Pioneer Telephone Association, 632 Lemcke Building, Indianapolis, Indiana.

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